International Journal on Recent Researches In Science, Engineering & Technology
(Division of Mechanical Engineering)
A Journal Established in early 2000 as National journal and upgraded to International journal in 2013 and is in existence for the last 10 years. It is run by Retired Professors from NIT, Trichy.
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Indexed in JIR, DIIF and SJIF.
This journal has been approved by University Grants Commission UGC Approved Journal No. 45483
Research Paper Available online at: www.jrrset.com

ISSN (Print) : 2347-6729
ISSN (Online) : 2348-3105

Volume 5, Issue 11, November 2017

JIR IF : 2.54
DIIF IF :1.46
SJIF IF: 4.338

EXPERIMENTAL PARAMETRIC STUDIES ON DUPLEX STAINLESS STEEL USING ABRASIVE WATER JET MACHINING

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ABSTRACT

Abrasive water Jet Machining is one of the modern manufacturing method is being used for machining super alloys, refractory type of materials and also machining thin sections of hard materials. Its main application in machining the space craft components, nuclear power plant components, aero space components, medical components ect,. In this process a focused steam of abrasive particles of 10 to 40 microns carried by high pressure gas at velocity of about 200 to 400m/sec is made to impinge on the work surface through nozzle. In this paper investigation is made between input process parameters such Water Pressure, Standoff Distance. Abrasive Mass flow. Cutting speed and process responses such as Material Removal Rate (MRR), Surface Roughness (SR). Optimization of the process parameters predicated by using Taguchi Analysis and Grey relational Analysis. The major contribution of present work is to study effect of process parameters on quality of machined surface in Abrasive water Jet Machining.