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## OPTIMIZATION OF PROCESS PARAMETERS OF PLASMA ARC CUTTING USING BOX-BEHNKEN DESIGN

**INDRAJEET N. MAGDUM**

*Asst. Professor  
Department of Mechanical Engineering,  
G.M. Vedaak institute of technology,  
Tala  
indrajeet009@gmail.com*

**JITESH G. BHAGAT**

*Asst. Professor  
Department of Mechanical Engineering,  
G.M. Vedaak institute of technology,  
Tala  
jiteshbhagat88@yahoo.com*

**DR. M. T. TELSANG**

*Professor  
Department of Mechanical - Production,  
Rajarambapu Institute of Technology,  
Rajaramnagar Sangli, MH, INDIA  
martand.telsang@ritindia.edu*

**ABSTRACT:-** Plasma Arc cutting Machining is one of the most important non conventional machining methods used in fabrication industries because of its high accuracy, ability to machine any hard material, ability to produce any complicated shape and better finish. In this study plasma arc cutting of stainless steel (304L) materials has been carried out using plasma arc cutting machine. The machine used for cutting is ADTECH HC6500 CNC plasma cutting machine.

Response Surface methodology (RSM) has been adopted to express the output parameters (responses) that are decided by the input process parameters. RSM also quantifies the relationship between the variable input parameters and the output parameters. RSM designs allow estimating interaction and even the quadratic effects. Box -Behnken design approach is used for plan the experiments for cutting stainless steel 304L material of 60mm×60mm×8mm plate with an objective of optimizing the process to higher metal removal, better surface quality.

**Key words** — Plasma Arc Cutting, RSM, Box-Behnken Design.

## REGENERATIVE SUSPENSION SYSTEM FOR AIR CONDITION

**PANDIT SUJEET SHIVNARAYAN**

*Department of Mechanical Engineering,  
G.M. Vedaak institute of technology, Tala  
sujeetpandit47@gmail.com*

**KOLI ANKIT KAMALAKAR**

*Department of Mechanical Engineering,  
G.M. Vedaak institute of technology, Tala*

**JOYA LALITKUMAR KISHOR**

*Department of Mechanical Engineering,  
G.M. Vedaak institute of technology, Tala  
joyalalit@gmail.com*

**MOHAPE SUNIL DHANAJI**

*Department of Mechanical Engineering,  
G.M. Vedaak institute of technology, Tala  
sunilmohape6@gmail.com*

**PROF. SIDDHESH KAMAT**

*Assistant Professor  
Department of Mechanical Engineering,  
G.M. Vedaak institute of technology, Tala*

**ABSTRACT:-**This project is divided in two systems. First is Air-conditioning working and another is suspension system. Vehicle air-conditioning can significantly impact fuel economy and tailpipe emissions of conventional and hybrid electric vehicles (HEV). There is lot of fuel burn only for working of A.C. while driving the car. If A.C. will run on other system rather than fuel then there will lot of fuel save in car. Efficiency of car will also increase. In the new age of the electric vehicle, almost everything has to be rethought. In one hundred years, people will laugh at today's hybrid and pure electric vehicles rather in the way we laugh at motor vehicles from 1880 that looked like something dragged along by a horse because that was the starting point. Inside and out, today's electric vehicles look almost the same as what went before. However, until we figure out how to make elasticized vehicle bodies we shall need shock absorbers. Only 10-16% of fuel energy is used to drive a car along. Hybrid vehicles recapture some of the energy usually lost in braking but the dissipation of vibration energy by shock absorbers in the vehicle suspension remains untapped. This is realized by in-vehicle energy recovery from conversion into electricity of the kinetic energy present during driving resulting from the movements of the suspension of the vehicle wheels. The amount of the energy produced automatically by the vehicle with the methods of this invention is fully sufficient for the energy consumption of the vehicle. Linear motion of suspension system is also use for compress the air by using piston-cylinder arrangement. By using this compress air we can run A.C. system in the car and save fuel.

**Keywords**—component; formatting; style; styling;