

Effect of Parametric Optimization of EDM Process Using Response Surface Methodology

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Abstract-The Electro Discharge Machining is a widely accepted non-convection machining process. There are so many process parameters which are statistically affects the machining. Best combination of these parameters gives excellent result. For current research pulse on time, pulse off time, peak current and spark gap set voltage is selected to optimize material removal rate. Surface roughness and micro hardness is also optimizing for better result. The analysis is based on Response surface Methodology.

I. OBJECTIVE

This dissertation work, discusses on the effects of the various process parameters on the performance measures like MMR, Surface Roughness and Micro Hardness in EDM process. Parameter Modeling and Response optimization of EDM process using Response Surface Methodology

II. LITERATURE REVIEW

Optimization And Analysis Of Cu-W Tool Edm

Process By Using Composite Materials

By applying this technology to a simple die, the toolwear rate defects generated by EDM could becompletely removed by incorporating the copper tungsten rod Cu-w (70%-30%) composition process into EDM.The resulting tool wear rate, cycle time was reduced. So increase productions reduced cycle time, machining cost, tool wear rate and increase the surface finish

Optimization of EDM Process of (Cu-W) EDM Electrodes on Different Progression

By this research work is to determine the optimal cutting condition of EDM process of different work piece materials using different compositions of Cu-W tool Electrodes. The key cutting factors such as Discharge Current, Voltage, Pulse- On – Time, Duty Cycle, Spark Gap and flushing pressure will be optimized.

III. EXPERIMENT SET UP

So increase production rate, reduced machining cost, tool wear rate is decreased and improved surface finish of the composite materials. So Copper-tungsten composite material is selected for current project workThe experiment will carried out on Electric Discharge Machine of sparkonix company.

Specification of ultrasonic welding machine

Model – F 50 Power – 415 v Frequency – 50 Hz

Maximum Height Of Work Piece -400mm Maximum Weight Of Work Piece -2000kg Maximum Electrode Weight 50kg

IV. RESULTS AND DISCUSSION

Table : Experimental output result

	TON	TOFF	I	V	MRR	SR	MH
1	70	50	10	35	0.9878	2.23	171.6
2	70	50	10	35	0.9500	2.21	172.3
3	70	50	10	35	0.9697	2.15	170.5
4	70	60	15	40	0.9073	1.00	180.1
5	70	60	15	40	0.8859	1.81	181.2
6	70	60	15	40	0.8974	1.80	182.0
7	70	90	20	45	0.6821	1.79	185.3
8	70	90	20	45	0.6985	1.78	185.7
9	70	90	20	45	0.8021	1.75	186.4
10	90	50	15	45	1.1982	2.10	201.0

V. CONCLUSION

After completion of thesis work successfully the conclusion is other response like tool wear rate for same work piece material can be performed. More process parameter with best combination can be optimizing for the same responses

REFERENCES

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