IJARSCT



International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

Volume 3, Issue 1, August 2023

An Overview of Optimization Techniques Utilized in Sheet Metal Blanking Processes

Swapnil Bhoir¹, Dr. Dharmendra Dubey², Manoj Dongare³

Assistant Professor, Mechanical Engineering Department, C.S.M.I.T. Panvel, Navi Mumbai, India¹ Professor, Mechanical Engineering Department, C.S.M.I.T. Panvel, Navi Mumbai, India² Assistant Professor, Mechanical Engineering Department, C.S.M.I.T. Panvel, Navi Mumbai, India³

Abstract: This research examines various methodologies employed to predict optimal parameters in the sheet metal blanking process and optimize these parameters. It thoroughly investigates the different parameters that influence the process's output and analyses their impact on the quality of the blanked material through diverse methodologies. The findings of the study confirm the efficacy of each methodology utilized for parameter optimization.

Keywords: Blanking, Burr, Clearance, Optimization

REFERENCES

- [1]. Faura F, Garcia A and Estrems M (1998), "Finite Element Analysis of Optimum Clearance in the Blanking Process", Journal of Materials Processing Technology, Vols. 80-81, pp. 121-125.
- [2]. Samuel M (1998), "FEM Simulations and Experimental Analysis of Parameters of Influence in the Blanking Process", Journal of Materials Processing Technology, Vol. 84, pp. 97-106
- [3]. Maiti S, Ambekar A, Singh U, Date P and Narasimhan K (2001), "Assessment of Influence of Some Process Parameters on Sheet Metal Blanking", Journal of Materials Processing Technology, Vol. 102, pp. 249-256.
- [4]. Fang G, Zeng G P and Lou L (2002), "Finite Element Simulation of the Effect of Clearance on the Forming Quality in the Blanking Process", Journal of Materials Processing Technology, Vol. 122, pp. 249-254.
- [5]. Hambli R (2002), "Design of Experiment Based Analysis for Sheet Metal Blanking Processes Optimization", The International Journal of Advanced Manufacturing Technology, Vol. 19, pp. 403-410
- [6]. Hambli R, Richir S, Crubleau P and Taravel B (2003), "Prediction of Optimum Clearance in Sheet Metal Blanking Processes", International Journal of Advanced Manufacturing Technology, Vol. 22, pp. 20-25.
- [7]. Ridha Hambli (2005), "Optimization of Blanking Process Using Neural Network Simulation", The Arabian Journal for Science and Engineering, Vol. 30, June.
- [8]. Emad Al-Momani and Ibrahim Rawabdeh (2008), "An Application of Finite Element Method and Design of Experiments in the Optimization of Sheet Metal Blanking Process", Jordan Journal of Mechanical and Industrial Engineering, Vol. 2, No. 1, pp. 53-63.
- [9]. R.S. Mohan Kumar, Dr. C. Velmurugan(2018), "Development of Mathematical Modeling and its Exploration Based on Genetic Algorithm for Blanking Die Design Parameters Optimization", Applied Mechanics and Materials, Volume 877, Pages 54-5
- [10]. Phyo Wai Myint, SeiyaHagihara(2018), "Application of Finite Element Method to Analyze the Influences of Process Parameters on the Cut Surface in Fine Blanking Processes by Using Clearance-Dependent Critical Fracture Criteria", Journal of Manufacturing & Materials processing, Pages 1-15
- [11]. Mohamed Sahli, (2020), "Modeling and numerical simulation of steel sheet fine blanking process", Procedia Manufacturing 50, Pages 395- 400

