

## **Inconel 718 Milling Process Machining Modeling**

**Silverio Dominguez-Rueda<sup>1</sup>, Indira Escamilla-Salazar<sup>1</sup>, Bernardo Gonzalez-Ortiz<sup>1</sup>, and David Garza-Castaño<sup>1</sup>**

<sup>1</sup>Universidad Autónoma de Nuevo León – FIME, Ave. Universidad s/n, Ciudad Universitaria, San Nicolás de los Garza, Nuevo León, México

Corresponding author's Email: [silveriorueda@outlook.com](mailto:silveriorueda@outlook.com), [indiraescamilla@gmail.com](mailto:indiraescamilla@gmail.com) and [bgzzortiz@gmail.com](mailto:bgzzortiz@gmail.com)

**Author Note:** This article was created for develop the investigation of machining parameters of certain materials in order to obtain correct parameters and provides supporting for future researches.

**Abstract:** Modeling and simulation of metal cutting process has the capacity to improve the design of cutting tools and select optimum parameters for advanced applications such as high-speed milling [Chun-Pao Kou, 2006]. This study analyzes the machining parameters for Inconel 718 that is a superalloy. Pieces of Inconel 718 will be deformed plastically as consequence of the machining process applied. Machining operations with superalloys have difficulties due the characteristics of the material in addition traditional techniques for machining common alloys are wrongly applied instead of correct machining techniques for superalloys.

The present work has the purpose of implement an experimental design in order to obtain relevant information related to the machining efficiency in Inconel 718, wear in the cutting tool [Fang, 2013]. In this study a predictive model will be created by analyze different parameters for machining operation, as well as different diameters of the tools that provide data for process information.

Parameters under study for this research are speed, feed and depth on the cutting process in the machining. Analyzed results are the tool wear [Fang, 2011], as well the roughness of the surface in the work piece and other representative variables will be considered that are affected for machining process.

Registered data and results of the tests will allow create a statistical regression model and will contributing for improve machining of the Inconel 718 [Thakur, 2009], in addition a reduction in the wear of the tool during the process will be reached, considering all variables related in the machining process that could affect the final efficiency.

*Keywords:* Machining Parameters, Statistical Model, Inconel, Milling Process