Abstract

Magnetic Abrasive Finishing (MAF) is one of the advance fine finishing processes. Many researchers have worked on MAF of various materials. But little work has been reported on the study of combined effect of parameters like rotational speed, machining time, abrasive mesh number with varying values of vibration. In the present research work, MAF process has been combined with mechanical vibrations to study the effect of vibrations on the surface finishing capabilities of the process. It is also known as Vibration Assisted Magnetic Abrasive Finishing
Fine Finishing of Al 6061 with Mechanical Vibration Assisted Magnetic Abrasive Finishing Process (VAMAF). The varying value of acceleration combined with other effective parameters (rotational speed, time and abrasive size) was used to investigate the effect. Design of Experiment approach "Response Surface Methodology" was used to conduct and analyze the experiments for finishing aluminum flat plate with silicon abrasives. Empirical relation between input and output parameter also suggested. Percentage improvement in surface roughness (PISF) 56.85% for aluminum flat plate at rotational speed 500 rpm, acceleration 11.84 m/s², time 40 minutes, mesh number 200 and percentage conventional machining processes.

References

- Singh D. K., Jain V. K., Raghurama V. and Komanduri R. (2005), "Analysis of surface texture generated by a flexible magnetic abrasive brush".

Index Terms
**Keywords**

Pisf  Acceleration  Rotational Speed  Time  Mesh Number  Aluminum Flat Plate