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Report on

**INVESTIGATION ON MACHINING PARAMETERS OF AL6061
REINFORCED WITH FLYASH AND AL₂O₃**

*A Project report submitted for the partial fulfilment of the requirements for award of
Degree of*

BACHELOR OF TECHNOLOGY

IN

MECHANICAL ENGINEERING

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AVANTHI INSTITUTE OF ENGINEERING & TECHNOLOGY
(Approved by AICTE, New Delhi & Permanently affiliated to JNTU Kakinada)
(Accredited by NAAC, UGC & NBA, AICTE)
MAKAVARAPALEM, NARSIPATNAM,
VISAKHAPATNAM DIST (2018-2021)

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CERTIFICATE

This is to certify that the project entitled “**INVESTIGATION ON MACHINING PARAMETERS OF AL6061 RENIFORCED WITH FLYASH AND AL203**” is the record of the work carried out by N.Y.N.Ganesh(18815A0341) , V.Veerababu (18815A0366) . T.Rakesh (18815A0363), S.Raju (1885A0356) , students of final year B.Tech in department of Mechanical Engineering.This work is done for the award of **BACHELOR OF TECHNOLOGY** during the year 2018-2021


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ABSTRACT

This experiment deals with the fabrication and evaluation of turning forces by introducing micro size Al_2O_3 and fly ash powder particles into Al6061 alloy matrix. Al6061 alloy based hybrid metal matrix composites were prepared by stir casting method. 3, 6, 9 wt. % of Al_2O_3 and 3, 6, 9 wt. % of fly ash were added to the base matrix. For each composite, the reinforcement particles were pre-heated to a temperature of 600 .

The Microstructural study was done by using Scanning Electron Microscope (SEM), which revealed the uniform distribution of Al_2O_3 and fly ash in matrix alloy. Automatic lathe machine was used to evaluate the turning forces of prepared specimens, in which dynamometer was used for the measuring turning forces. The results are dependent on the cutting parameters. I.e. Feed, depth of cut, speed and reinforcement.

The results indicate that cutting force components are influenced principally by the depth of cut, while the effect of both cutting speed and feed rate is small. On the other hand, the depth of cut has the most significant effect on the MRR; the cutting speed has less significant effect whereas feed rate has the lowest effect.