

ANALYSIS OF ABRASIVE JET MACHINING BY USING TAGUCHI TECHNIQUES

A.S.MALI

D.M. GAUR

S.N.JADHAV

G.M.PYADSHINGE

Students, AGPIT, Solapur

V V POTDAR

Vice Principal of AGPIT, Solapur.

ABSTRACT

Abrasive jet machining (AJM) is an advanced technique in the field of micro machining. This operation is widely utilized as a part of the industry for cutting intricate shape on hard and brittle materials that are usually difficult to perform.

In present experimental study, the effect of process variables on the material removal rate (MRR) was studied by using Taguchi and ANOVA methods using Minitab 15, which provides acceptable simulated results. Drilling operation of glass is done at varied jet pressure, stand of distance (SOD), nozzle inclination (NI) and nozzle tip diameter (ND) as the process variables. Material removal rate of drilled hole is considered as the output of whole machine process.

To exhibit the solution and to validate this simple analysis a statistical tool, DOE, has been followed, under which Taguchi orthogonal array (OA) is utilized for experimental design and optimum outcome accomplished through Analysis of variance (ANOVA).

It was discovered from the parametric analysis that all the process variables are impressive to evaluate the criteria of MRR whereas both machining pressure and nozzle inclination are most influencing factors.

KEYWORDS - AJM, Glass, micromachining, Taguchi OA, ANOVA.