

OPTIMIZATION OF CUTTING PARAMETERS IN MACHINING OF EN-353 METAL BY USING TAGUCHI METHOD

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Abstract

Metal cutting is the process of removing unwanted material from the work piece in the form of chips by turning using a single point cutting tool. In the present work, EN-353 is used as work material and turning is performed with coated carbide tools (PVD). For analyzing the cutting parameters such as spindle speed (s), feed rate (f), depth of cut (t), taguchi's orthogonal array has been selected by using MINITAB software. Output parameter such as surface roughness (Ra) and material removal rate (MRR) have been experimentally measured by using analysis of variance (ANOVA). The experimental data have been evaluated and verified for its accuracy. MINITAB has been used for evaluating ANOVA. EN-353 is widely used in machining components such as gears, pinion, gear shafts, wheel axel, crown wheels, cam shafts, crank shaft, crank pins, gudgeon pins, turbine shafts and many other applications.

Keywords : Surface roughness (Ra), Material removal rate (MRR), Taguchi method, and Analysis of variance (ANOVA).

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