

Optimization of Machining Parameters by Using Cryogenic Media

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Abstract : Optimization and analysis of tool flank wear width and surface finish of alloy steel rods are studied in the presence of cryogenic media (LN₂) by using Tungsten Carbide Insert (CNMG 120404- WF 4215). Robust design concept of Taguchi L9(34) method and ANOVA is applied to determine the contribution of key cutting parameters and their optimum conditions. Through analysis, it revealed that cryogenic impact is more significant in reduction of the tool flank wear width while surface finish is mostly dependent on feed rate.

Keywords : turning, cryogenic fluid, liquid nitrogen, flank wear, surface roughness, taguchi

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