

SIGNIFICANCE OF CUTTING TOOL GEOMETRY IN MACHINING AND MEASURING AREAS OF IN CNC MACHINES AND METROLOGY INSTRUMENTS RESPECTIVELY

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ABSTRACT

The effects of a number of cutting tool coating materials on the surface quality of work pieces, depending on various cutting parameters, were investigated. Tools with specified speed and feed can deliver the product with correct tolerances. lathe using 4 different cemented carbide cutting tools, i.e. uncoated, coated with AlTiN and coated with using the pvd technique, and one with 3-layer coatings (outermost being TiN) applied by the CVD technique. Among the cutting parameters, the depth of cut was kept constant (2.5 mm) while the cutting Speed and feed rate were changed. Various cutting speeds and different feed rates were used during the machining process. And it is similar to the measuring process but kind tool is different. Coating type, feed rate and cutting speed have different effects on surface roughness. Both machining and measuring tools plays a major role to get the desired results. by using a 3-layer coated tool coated outermost with TiN. The lessening of cutting speed for high hardened material gives good life. Similarly ductile material like aluminum operating high speed is investigated and found good results.

KEYWORDS: Machining, Surface Roughness, Cutting Tool Coating, Tools in Height Guage, Cutting Parameters