

## Study OF *TITANIUM nitride* (TiAlN)-coated carbide chisel on dry aluminium 6061

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### Abstract

Fertilizing is one of the machining processes that uses a chisel with one eye cut to remove material from the surface of a rotating workpiece. The chisel moves in a linear direction parallel to the rotating axis of the workpiece. Some of the cutting variables will determine the quality of products such as cutting speed ( $V_c$ ) The use of cut speed Variasa produces different thermal load value, and has a big effect on the cutting temperature. The purpose of the test aims to determine the impact of cut speed ( $V_c$ ), motion feeding ( $f$ ), and depth of cut ( $a$ ) against the wear and tear of the chisel. The method used in this research is to use carbide chisels ( $Wc + Co$ ) coated with Titanium aluminium Nitrida (TiAlN) coating material with DCGX 11T3 02-AI type which is used to cut the 6061 aluminum. Results obtained with cut rate ( $V_c$ ) 200,270,340 m/min, motion meal ( $F$ ) 0.1 mm/round, and feeding depth ( $a$ ) 1.0 mm is the average side wear of the chisel is 0.08, 0.09, 0, 1 mm. The cutting speed is impacting the temperature rise. Side wear value is getting bigger on *dry cutting* of 6061 aluminium material along with raising cutting speed Parameters ( $V_c$ ).

Key words: dry machining, side wear ( $V_b$ )