The Effect of Various Diameters Orifice Nozzle Coolant on Surface Roughness Performance in CNC Turning

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Abstract. This paper presents the effect of the diameter of orifice nozzle coolant on cutting performance of aluminum alloy 6066 in turning operations. The main factors affecting the performance and the major influence are tool wear, tool life, chip deformation and surface roughness by using coated cemented carbide $Al_2 O_3$ insert. The surface roughness and chip deformation performance of the various diameter of orifice nozzle and velocity of coolant on cutting is investigated. The experiments were carried out on 2 axes CNC lathe machine. The result revealed that the good performance of surface roughness at the smallest nozzle orifice size with velocity given a great influence on cutting speed performance.