



HIGH SPEED TURNING OF ALUMINIUM BARS ON CNC BY USING SOLUBLE AND SYNTHETIC CUTTING FLUIDS

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A Project report submitted
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BACHELOR OF TECHNOLOGY IN MECHANICAL ENGINEERING

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CERTIFICATE

This is to certify that the thesis entitled “HIGH SPEED TURNING OF ALUMINIUM BARS ON CNC BY USING SOLUBLE AND SYNTHETIC CUTTING FLUIDS” being

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ABSTRACT

The cooling applications in machining operations play a very important role and many operations cannot be carried out efficiently without cooling. Application of a coolant in a cutting process can increase tool life and dimensional accuracy, decrease cutting temperatures, surface roughness and the amount of power consumed in a metal cutting process and thus improve the productivity.

In this review, dry machining was carried out on Aluminium bars and also Synthetic oil (Castrol SYNITOL) and Soluble cutting oil (Castrol ALUSOL) and Kerosene were used as coolants and investigated in detail in terms of application methods in material removal operations and its effects on cutting tool and workpiece material properties, cutting temperature, tool wear/life. As a result, Soluble (Castrol ALUSOL) coolant has been determined as one of the most favourable cutting oil for machining aluminium alloys due to being capable of considerable improvement in tool life and surface finish through reduction in tool wear through control of machining temperature desirably at the cutting zone.

Keywords: Dry Machining, Synthetic (Castrol SYNITOL), Soluble (Castrol ALUSOL) Coolants, Tool wear, Cutting temperature