Influence of Ground End Mill Surface Quality on Cutting Tool Life

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Cutting tools made of cemented carbides currently dominate the field of machining. This is due to their outstanding properties and applicability to various materials. However, there are still opportunities for enhancement in the field of cutting tool durability, particularly in the machining of highly resistant super alloys. Grinding critically affects the integrity of the machined surface, which has a significant impact on the durability of cutting tools. Certain cutting conditions and grinding strategies can lead to a sudden failure of the cutting tool in the cut. The main goal of this study is to investigate the influence of the cutting conditions on the end mill flute surface quality and durability of these cutting tools when machining Inconel 718. The surface parameters are described and real machining tests are conducted.

Keywords: Grinding, Electron Microscopy, Cutting Tool Life, Surface, End Mill

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