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Stability Lobe Prediction in the Milling of Aluminium 7075 and Aluminium 6061

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Abstract : Machining instability caused by chatter on machine tools is a defect that is to be reduced to avoid the presence of high roughness on the surface of the machined part and rapid and excessive wear of the tool in metal cutting processes. Therefore, this work characterizes the behavior of the milling operations in Aluminum 7075 and Aluminum 6061, through the development of analytical methods for the subsequent generation of stability lobe diagrams, since these allow us to appreciate the working conditions in which the process presents a stable behavior since by means of the analysis of regenerative chatter in the machine tools we can predict the optimal operating point.
In order to arrive at an analysis of the stabilization of the self-excited vibrations in the orthogonal cutting process, the methods proposed by Altinas and Budak are studied, who develop a complete methodology of the subject.
Keywords : Machining, chatter, lobe diagramming, milling.

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