

Chatter Suppression in Boring Process Using Passive Damper

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Abstract : During machining process, chatter is an unavoidable phenomenon. Boring bars possess the cantilever shape and due to this, it is subjected to chatter. The adverse effect of chatter includes the increase in temperature which will leads to excess tool wear. To overcome these problems, in this investigation, Cartridge brass (Cu - 70% and Zn - 30%) is passively fixed on the boring bar and also clearance is provided in order to reduce the displacement, tool wear and cutting temperature. A conventional all geared lathe is attached with vibrometer and pyrometer is used to measure the displacement and temperature. The influence of input parameters such as cutting speed, depth of cut and clearance on temperature, tool wear and displacement are investigated for various cutting conditions. From the result, the optimum conditions to obtain better damping in boring process for chatter reduction is identified.

Keywords : boring, chatter, mass damping, passive damping

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