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Artificial Wear for the Assessment of Monitoring Performance

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Abstract

Various tool condition monitoring systems exist, that can increase machine availability and process reliability. Assessing and comparing their performance, however, requires high expenditure due to real process failures being scarce, too different or costly to reproduce. Hence, this paper investigates the reproducible simulation of flank wear. It introduces and validates a geometry for indexable inserts that results in process changes similar to those caused by natural flank wear. The validation considers turning processes with different feeds, depth of cut and cutting speeds in steel. Results demonstrate that the proposed geometry for indexable inserts affects process forces similar to natural flank wear.

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