

Empirical Analysis of Velocity Behavior for Collaborative Robots in Transient Contact Cases

Authors : C. Schneider, M. M. Seizmeir, T. Suchanek, M. Hutter-Mironovova, M. Bdiwi, M. Putz

Abstract : In this paper, a suitable measurement setup is presented to conduct force and pressure measurements for transient contact cases at the example of lathe machine tending. Empirical measurements were executed on a selected collaborative robot's behavior regarding allowable operating speeds under consideration of sensor- and workpiece-specific factors. Comparisons between the theoretic calculations proposed in ISO/TS 15066 and the practical measurement results reveal a basis for future research. With the created database, preliminary risk assessment and economic assessment procedures of collaborative machine tending cells can be facilitated.

Keywords : biomechanical thresholds, collaborative robots, force and pressure measurements, machine tending, transient contact

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