Twin-Control: A New Concept Towards Machine Tool Health Management

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ABSTRACT

Twin-Control (http://twincontrol.eu/) is a new concept for machine tool and machining process performance optimization. It is based on a new simulation model that integrates the different aspects that affect machine tool and machining performance. This holistic approach will allow a better estimation of machining performance than single featured simulation packages, including lifecycle concepts like energy consumption and end-life of components.

This theoretical representation of the machine is complemented with real process data by the monitoring of the most important variables of the machining process and machine condition. This monitored information, combined with the developed models, is used at machine level to perform model-based control actions and/or warn about damaged components of the machine tool. In addition, a fleet-level data management system is used for a proper health management and optimize the maintenance actions on the machine tools.