

PRESS RELEASE

Aachen, June 2nd, 2020

Laboratory for Machine Tools and
Production Engineering (WZL) of
RWTH Aachen University

Stefanie Strigl
Head of Press and Public Relations

Predictive Maintenance

New Guide for the Development of Predictive Maintenance Systems for Toolmaking Companies and Series Producers is Online

Campus-Boulevard 30
52074 Aachen
GERMANY

Phone: +49 241 80-27554
Fax: +49 241 80-22293
s.strigl@wzl.rwth-aachen.de
www.wzl.rwth-aachen.de

Production shutdown – the worst-case scenario for any series producer. A five-minute standstill already means average costs of 100,000 euros in automobile production. A few years ago, the only way to maintain machines, systems or means of transport a good time before critical components fail and production downtime occurs seemed possible only in science fiction films. However, thanks to improved and more cost-effective sensor, transmission and data storage technology, predictive maintenance of production processes is already a reality in some sectors and shows great potential in the context of Industry 4.0.

In order to enable companies to develop and offer predictive maintenance systems and services independently, the Department of Business Development of the Chair of Production Engineering at the Laboratory for Machine Tools and Production Engineering (WZL) of RWTH Aachen University has developed a generic guideline for action in cooperation with various series producers and tool manufacturing companies. In order to combine tool and process knowledge synergetically in series production, the close and cooperative collaboration between series producers and tool manufacturers is indispensable for the application of predictive maintenance.



Series production in the automotive industry (© Photo: Shutterstock)

PRESS RELEASE

Aachen, June 2nd, 2020

Companies that are experiencing an increasing number of tool-related failures in their series production due to repeated, unforeseen disturbances are the main target group of the guide. Predictive maintenance can help these companies to predict incidents such as tool failure and to derive concrete measures based on this. For toolmaking companies, this offers the opportunity to expand their existing service portfolio with predictive maintenance solutions in order to significantly increase customer benefit over the entire life cycle of the tool and to open up additional business areas.

Procedures for Company-Specific Implementation

Predictive Maintenance works by collecting, transferring, storing and near-realtime utilization of large amounts of data. Based on complex analysis procedures and algorithms, deviations in the recorded operating parameters of a machine-tool system can be identified and necessary maintenance can be anticipated. Since both the technical implementation and the embedding of the technical solutions in the existing product and service portfolio often pose a major challenge for series producers and toolmaking companies, the guide is based on a comprehensive study, which, in addition to concrete research results, is also based on expert knowledge of the participating partners from industry and research.

The generic guideline represents a systematic procedure for the development of predictive maintenance solutions in three phases with a total of six steps. During the analysis phase, all relevant prerequisites and requirements for a predictive maintenance solution are first recorded. In the design phase, these are transferred to solutions in terms of tools, infrastructure and services. Finally, in the implementation phase, the commissioning, learning of the algorithm and definition of interaction points and workflows take place.

The results of the study indicate that the use of a predictive maintenance solution offers great potential for increasing machine availability by significantly reducing unplanned downtime while at the same time lowering maintenance costs through better plannable, condition-based maintenance in series production. By providing the appropriate services, toolmaking companies are given the opportunity to expand their range of products and services, to differentiate themselves effectively from the competition and to increase their profitability. The cooperative development of predictive maintenance solutions means that both sides can benefit equally from corresponding service concepts.

The study and the guide are available for free [download on the WZL website](#).

Contact at the WZL

Max Busch
+49 241 80-28197
+49 151 51570599
m.busch@wzl.rwth-aachen.de

Christoph Frey
+49 241 80-28681
+49 151 51530086
c.frey@wzl.rwth-aachen.de

PRESS RELEASE

Aachen, June 2nd, 2020

Laboratory for Machine Tools and Production Engineering (WZL)

The Laboratory for Machine Tools and Production Engineering (WZL) of RWTH Aachen University enhances the innovative strength and competitiveness of the industry with trend-setting basic research, applied research and the associated consulting and implementation projects in the field of production technology. In the research fields of manufacturing technology, machine tools, production engineering, gear technology as well as production metrology and quality management, practical solutions for rationalizing production are developed with industrial partners from a broad range of branches.