PRESS RELEASE

The Fraunhofer IST at the Hannover Messe 2023

Innovative sensor inserts enable monitoring of production processes

In order to achieve optimum product quality, precise control of the production process is necessary. For this purpose, the relevant parameters must be continuously recorded. In this context, the Fraunhofer Institute for Surface Engineering and Thin Films IST from Braunschweig will be presenting its most recent developments for the optimization of cotter rolling processes at this year's Hannover Messe: Thin-film sensor inserts which enable precise in-situ detection of the temperature distribution on the tool surface.

In collaboration with the Institut für Integrierte Produktion Hannover gGmbH (IPH), the Fraunhofer IST has developed special sensor inserts in the form of a measuring funnel which can be integrated directly into the surface of the tool. This method makes it possible to retrofit existing machines and tools and, in addition, offers the possibility of implementing improvements and further developments of the sensor technology through the simple replacement of the insert.

Thanks to the recording of measured variables such as temperature or pressure directly on the surface of highly loaded tools during a manufacturing or machining operation, tool-wear processes can be better understood and unexpected fluctuations can be detected promptly. Compared to conventional measuring methods such as pyrometry, the taking of measurements directly during the process is significantly more precise and enables an exact recording of the temporal progression of the parameters.

The thin-film sensors are wear-resistant and are able to record measurement data even in highly stressed areas and on complexly shaped surfaces. The technology can be used for a variety of other production processes, such as hot and cold forming or plastic injection molding, and additionally provides an important data basis for the digitalization of production processes. The Fraunhofer IST develops individual solution concepts which are customized and adapted to the specific applications of the customer.

The Fraunhofer IST is looking forward to providing insights into the future-oriented technology of integrated thin-film sensor technology at the Hannover Messe 2023. Interested visitors are invited to appraise the described sensor inserts on the Fraunhofer joint stand in the "Adaptronics" area (Hall 16, Stand A12).

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Sensor insert coated with thin-film sensor technology.
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