SERVICING OF MACHINES

Application for the manufacturing industry - extended functionality of production facilities for series operation

SUMMARY

In future manufacturers will equip new machines with service packages that will optimize downtimes, process parameters and quality costs. Measuring systems, edge devices and IT infrastructure will therefore lead to the creation of service business models.

CURRENT SITUATION

Very strict requirements are placed on production facilities in linked series manufacturing in terms of availability, ruggedness and reliability. Furthermore, changes on the machine can lead to a loss of certification and the approval to supply. Nevertheless, digitalization options are expected in the production of new machines and as a retrofit option.

OBJECTIVE

In future, service packages for existing and new machines whose systems run in the requesting series operation will support and eventually replace decision-making processes. The aim is to achieve the following effects:

- Improve reliability in downtime planning
- Systematize the optimization of process parameters
- Reduction of quality costs

PROJECT DESCRIPTION

Existing machines from the machine manufacturer Felss Systems were upgraded so that process data can be recorded without any major intervention in the mechanical components or control system to enable reliable wear detection in the machine supplier’s manufacturing process and service center.

CONTACT

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INDUSTRIE 4.0 – FEATURES

PiezoBolts are force measurement bolts that can be installed in place of conventional sensors and record additional precise information such as forces emanating from inside machines. Data analytics covers the processing and structuring of extensive quantities of data so that it can be used as the basis for making reliable decisions.

STANDARDIZATION APPROACHES

Exchange of data between the machine controller, data processing and the scoring computer. A neural network is established using the MQTT transport protocol or IEC 62541-6 (OPC UA), IEC 62443 (IT security).

The force sensor system complies with the geometrical and mechanical properties of the ISO 4762 standard for screws.