



Condition monitoring for rollers

Güdel improves automation with software for predictive maintenance of rollers

Langenthal, March 20, 2019. Industry 4.0, Internet of Things (IIoT) or Maintenance 4.0 are important developments for the future. Güdel is working on smartService solutions and has recently started offering its customers condition monitoring for rollers. The system provides notifications about the condition of components and alerts before they come to a standstill. The

first systems have already been successfully put into operation.

Track rollers are of crucial importance for the function of the Güdel linear systems (e.g. floor axes, portal systems or linear axes). For this reason, it is important to know the condition of the rollers in order to ensure the smooth functioning of a system. The continuous evaluation of the

automatically generated data is used to predict the failure of certain components.

The roller condition monitoring system is also suitable for installations where rollers are installed in hard-to-reach areas.

Güdel defines and uses condition monitoring for a number of IIoT (Industrial Internet of Things) based products and tools to enable customers to perform

Level	 Twin	 Acquire	 Evaluate	 Prognose	 Advise
	Technical system data collect			Functionality evaluate and analyse data	
Function	<ul style="list-style-type: none"> Organize, present and archive data Identify physical assets 	<ul style="list-style-type: none"> Acquire and propagate data Safe data to digital twin 	<ul style="list-style-type: none"> Compute condition of a product based on measured data 	<ul style="list-style-type: none"> Compute prediction of remaining up-time of a component 	<ul style="list-style-type: none"> Compute conditional data based decisions and actions
Elements	<ul style="list-style-type: none"> ID plate CM computer Local CM database Visualisation tool 	<ul style="list-style-type: none"> Vibration sensors Velocity sensor Cabling Opt. Wi-Fi Opt. screen 	<ul style="list-style-type: none"> Mathematic model to compute the rollers state: OK, warning, error 		

Product classification in the 5-level condition monitoring model by Güdel

planned condition-based maintenance on smart products. The solution is based on a 5-step model.

Güdel's system in the 5-step model

Güdel's step model is divided into the levels of the technical systems „twin“ and „acquire“. At these stages, data is collected. In the subsequent stages, these data is then evaluated and measures are derived for the production process. Stage 3 „evaluate“ describes the function of determining the current status. This level consists of mathematical models to calculate the state of a component. Depending on the status, a notification is sent by e-mail for OK, warning or alarm.

The advantages for customers result from the modular and preconfigured software solution. Extensions can be made at any time. Due to its flexibility, condition monitoring is a secure investment with good perspectives for the future. As a manufacturer of components such as guide rollers and track rollers, Güdel has the advantage of having a sound understanding of the product and can therefore offer solutions from a single source. The vertical range of manufacture for automation solutions is high. The development processes are customer-oriented.

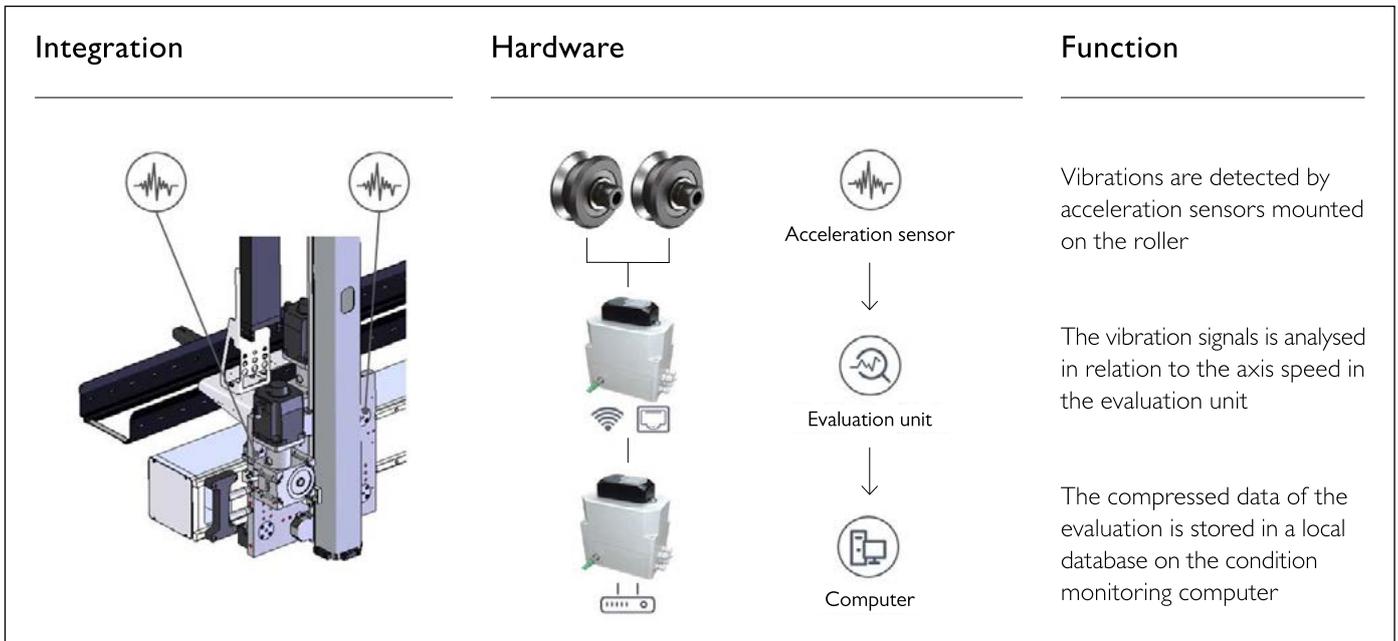
The software solution increases productivity and longevity

The collected data is stored on the local condition monitoring computer. A network connection is not mandatory. The installed software (Güdel condition monitoring manager) makes it possible to manage the system locally. If configured accordingly, messages can be sent by e-mail if the threshold value is exceeded. Visualization of data history and data collection units is included. So the customer can see at a glance what the trend is like. All data is automatically stored in a local database. In addition, the work carried out during repair and maintenance is documented in a logbook. Alarm signals triggered by the system are also logged in a traceable manner. This gives the customer a comprehensive overview of the efficiency and condition of his components. The necessary maintenance work can be planned and the financial expenditure for repairs can be calculated more easily.

Technical data

It is a pre-configured system that requires a 24 V power supply. Right now, Güdel guide rollers of sizes 15, 20, 25 and 30 can be monitored. The integration of external

components such as energy chains into the condition monitoring system is possible without any problems. Data transmission between sensors, evaluation units and condition monitoring computers takes place via W-LAN or LAN. The status of the rollers is displayed in the OK, warning and alarm levels and the system automatically triggers notifications or alarms by e-mail when configured accordingly.



The condition monitoring operating principle

Güdel Group AG

The Güdel Group is a manufacturer of high-precision machine components and provider of sophisticated automation solutions. Its spectrum of products ranges from linear guideways, racks, pinions and drives right through to linear axes and gantry robots. Güdel assembles its products into systems with a high degree of control intelligence and complete plant installations, which can be used in the automotive, tire, metal, rail, intra-logistics, pharmaceutical, renewable energy, wood, and aerospace industries. Güdel's technology is characterized by its innovation, quality and modularity. The Güdel Group has a workforce of approximately 1,200 employees worldwide in over 30 locations. The Group has been owned by the same family since its foundation more than 60 years ago. The Güdel Group has its headquarters in Switzerland.

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