

Find out today about tomorrow's world: igus smart plastics make maintenance intelligent

Smart products made of tribo-polymers increase the service life of machine tools by digitally monitoring their status

"Industry 4.0", "Internet of Things" and "Smart Factory" - these concepts are no longer a vague promise of what is to come. Companies are already able to benefit from the use of intelligent systems and products. At EMO 2019, igus will be showing how machine tool manufacturers and customers can raise their maintenance to a new level and, at the same time, reduce costs by using smart machine components.

Maintenance in the era of Industry 4.0 means a clear change of paradigm. Instead of personnel carrying out maintenance at fixed intervals or merely reacting to a failure or a fault, so-called "predictive maintenance" makes it possible to continually monitor the status of the machine tool. Repair or replacement is only carried out when really necessary. Maintenance tasks can be planned precisely. At the same time, unscheduled shutdowns and therefore the costs of failure can be reduced due to condition monitoring. In order to make this possible, igus has developed sophisticated smart plastics, by using diverse sensors and monitoring modules for energy chains, plain bearings, linear bearings and slewing ring bearings. For example, sensors for the measurement of abrasion or wear of the pin/bore connections of energy chains as well as sensors for the detection of breakages and the push/pull forces being applied. Due to networking with the new igus communication module (icom.plus), which igus will be showing on Stand E01 in Hall 8 at the EMO trade fair, the sensors are integrated into the customer's own IT infrastructure, for example into production management systems such as SCADA and MES, or online into cloud solutions throughout a company.

Flexible data integration with new icom.plus

The icom.plus is programmed with initial service life algorithms on the basis of igus configuration tools and, at the customer's request, can be operated offline without an update function after online installation. The user can therefore decide how the module is connected and how the data is managed, while

establishing a balance between runtime maximisation and IT security. If online connection of the icom.plus is chosen, the service life information is continuously compared with the igus cloud in order to enable maximum machine run times with a minimum risk of failure. The data in the cloud inter alia draw on the 10 billion annual test cycles of energy chains and cables performed in the company's own 3,800 square metre test laboratory. On the basis of these tests, the results of which are incorporated into the freely available service life calculator, it is possible to precisely predict how long an e-chain, for example, will work reliably in the respective machine tool application. Thanks to the isense components, the service life is continually updated, giving the customer additional reassurance. This is because each update takes into account the current ambient conditions of the application. Thanks to machine learning and continuous improvement, precise information on the durability of the individually used solutions in real applications can be obtained. This information can be viewed on the screen of the machine control system and, if online connection is chosen, an SMS or e-mail can provide the relevant details if unexpected operating states occur or maintenance is impending. At an early stage, users are informed if there is a need to procure replacement parts; a wide range of scenarios such as automatic initiation of maintenance work or the ordering of replacement parts as well as "e-chain as a service" can be implemented.

Caption:



Picture PM4219-1

Intelligent maintenance in the era of Industry 4.0: with igus smart plastics, you can increase the reliability of machine tools, plan maintenance tasks and as a result, reduce costs.

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ABOUT IGUS:

igus GmbH is a globally leading manufacturer of energy chain systems and polymer plain bearings. The Cologne-based family business has offices in 35 countries and employs 4,150 people around the world. In 2018, igus generated a turnover of 748 million euros with motion plastics, plastic components for moving applications. igus operates the largest test laboratories and factories in its sector to offer customers quick turnaround times on innovative products and solutions tailored to their needs.

The terms "igus", "Apiro", "chainflex", "CFRIP", "conprotect", "CTD", "drylin", "dry-tech", "dryspin", "easy chain", "e-chain", "e-chain systems", "e-ketten", "e-kettensysteme", "e-skin", "flizz", "ibow", "igear", "iglidur", "igubal", "kineKIT", "manus", "motion plastics", "pikchain", "plastics for longer life", "readychain", "readycable", "ReBeL", "speedigus", "triflex", "roboLink", and "xiros" are protected by trademark laws in the Federal Republic of Germany and internationally, where applicable.