NEXT GENERATION MAINTENANCE

TRANSPARENT MACHINE CONDITIONS WITH LIVECARE

KraussMaffei

Pioneering Plastics

socialProduction

INNOVATIVE PRODUCTS FOR PRODUCTION MONITORING

The product family socialProduction combines the benefits of social media with state-of-the-art production monitoring technologies. With its modular selectable products productionMonitor, processSupport and liveCare, socialProduction is precisely tailored to the needs of users in plastics production.

Plastic processing companies need to deliver perfect quality with strict time constraints and require machines with the highest possible availability and the lowest possible rejection rates. The product family socialProduction enables intuitive monitoring of injection molding machines, the production process and the condition of machine components. This prevents malfunctions, downtime or quality fluctuations and optimizes internal processes.

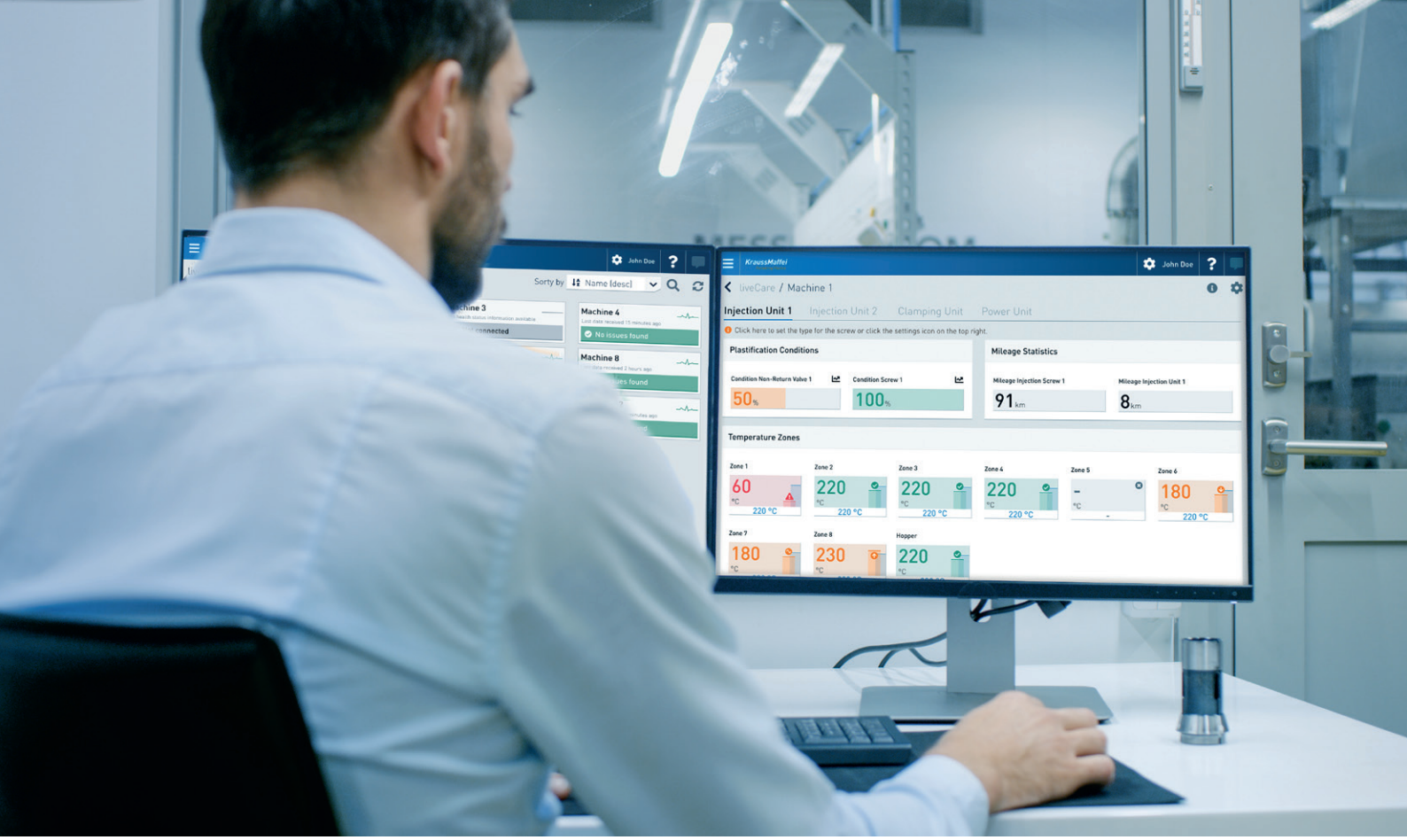
Both a smartphone app and a web app for PC or tablet are available to use socialProduction. Depending on your needs, you can perfectly integrate both applications into your daily work.
liveCare is part of the product family socialProduction and supports you by monitoring the condition of the machine and its components.

socialProduction – The product family

- liveCare for condition based maintenance
- productionMonitor for efficient monitoring of the machine park
- processSupport for automated detection of deviations in the production process

YOUR BENEFITS:

- **Automated and continuous monitoring of production status, process parameters and the condition of machine components**
- **Live push notifications in case of irregularities and important production events**
- **No manual input of thresholds necessary**
- **Certified to the highest IT security standards**



Condition Monitoring
IMPLEMENTATION OF CONDITION MONITORING

Intelligent monitoring of a machine and its components is becoming increasingly important to achieve optimal lifetime and availability. The monitoring of components (condition monitoring) is essential for many companies to secure their future and competitiveness.

The implementation of condition monitoring generally consists of three steps:

1. Physical variables are measured with sensors and their values are documented
2. A comparison of each recorded as-is situation with the associated target value follows, including predefined tolerance ranges
3. Analysis of the determined condition and the diagnosis of possible malfunctions

Condition monitoring of machines and components enables early detection of problems and prevents unplanned downtime. Specific maintenance tasks can be performed more efficiently, as they can often only be carried out when they are actually required, instead of fixed, predefined intervals. Maintenance tasks can also be planned in advance and efficiently integrated into the production schedule. As a result, planned downtime can be reduced. This is known as condition-based maintenance strategies.

Likewise, information about the condition of components can be used to optimize the ordering of spare parts. Instead of being held in stock, they can be ordered just in time, reducing inventory costs.

High-quality and resilient condition monitoring is also the basis for predicting the further lifetime of components.

liveCare

CONDITION MONITORING FOR INJECTION MOLDING MACHINES

Regular maintenance is essential for maximum machine availability and stable production. However, it is also a cost factor that must not be neglected. In the past, the main strategies used were time-based or cycle-based. With liveCare, KraussMaffei offers a condition monitoring solution that enables the implementation of more efficient data- and condition-based maintenance strategies as well as a seamless entry into the world of Industry 4.0.

A constantly growing product

liveCare currently monitors various components of the injection unit, the clamping unit and the power unit. In addition to the plasticizing screw, the non-return valve and the pump groups, temperature zones and pressure sensors of the injection molding machine are permanently monitored.

While displaying the status of components, liveCare also provides background information on relevant process parameters, such as plasticizing and cycle time. This means that wear-related performance losses or increased energy consumption can also be detected. The information from liveCare thus makes it possible to determine the optimal time for replacement from both an energy and an economic perspective. In this way, maintenance tasks can be planned proactively.

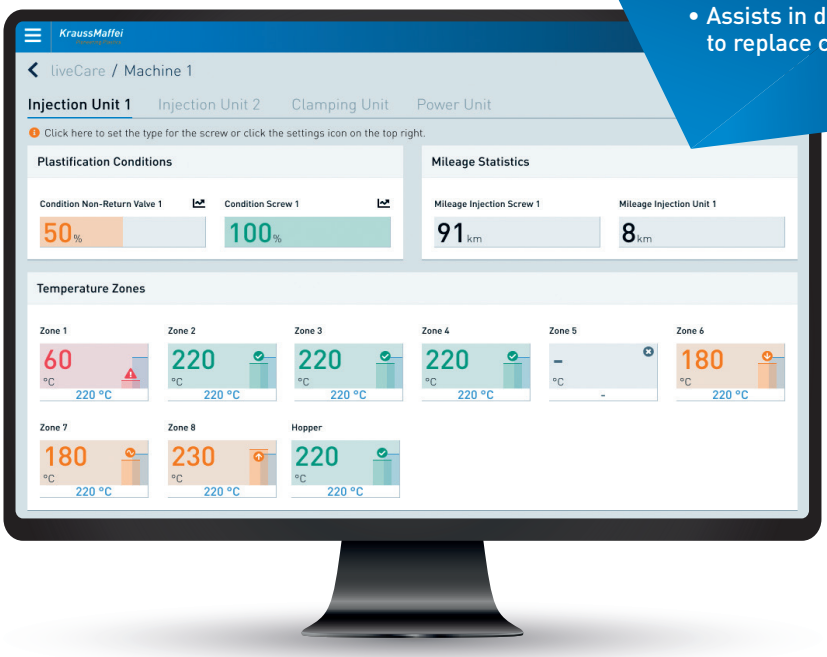
In the future, users will continue to be provided with additional components and new functionalities.

Special characteristics of liveCare

liveCare only uses sensors that are already integrated, avoiding the cost and effort of installing additional and external sensor technology. This ensures continuous rather than only selective condition monitoring.

YOUR BENEFITS:

- Immediate identification of critical components
- Detailed views with background information
- Use of existing machine data without additional sensors
- Assists in determining the optimal time to replace components



liveCare use-case

CONDITION MONITORING OF THE PLASTICIZING SCREW

The plasticizing screw is one of the most important components of the injection molding machine. Wear, especially caused by abrasive materials, occurs relatively quickly and has a major impact on the entire process. liveCare makes it possible to continuously monitor the condition of the plasticizing screw and helps determine the optimal time to replace it.

Wear on the screw flights causes an increase in the shear gap between the screw and barrel. As a result, material can flow back during plasticizing. In addition, the surface condition of the screw changes. Due to these influences, the plasticizing performance of the screw decreases over its lifetime. With constant process parameters, this leads to an increase in the plasticizing time and, over time, to an increase in the total cycle time. Wear therefore leads to a loss of machine performance. In addition, energy consumption also increases due to longer plasticizing phase.
Another effect can be decreased material quality: the reduced conveying capacity extends the residence time of the material and leads to longer mechanical shear. In consequence, the polymer chains are shortened and part quality can suffer.

When determining the optimal lifetime of a plasticizing screw, it is essential to take these factors into account to ensure a holistic view.

Your benefits from liveCare

- Information on current and historical screw condition
- Continuous monitoring of plasticizing performance
- Effects on plasticizing and cycle time immediately visible
- Consideration of different materials and process settings
- Basis for determining the optimal replacement time