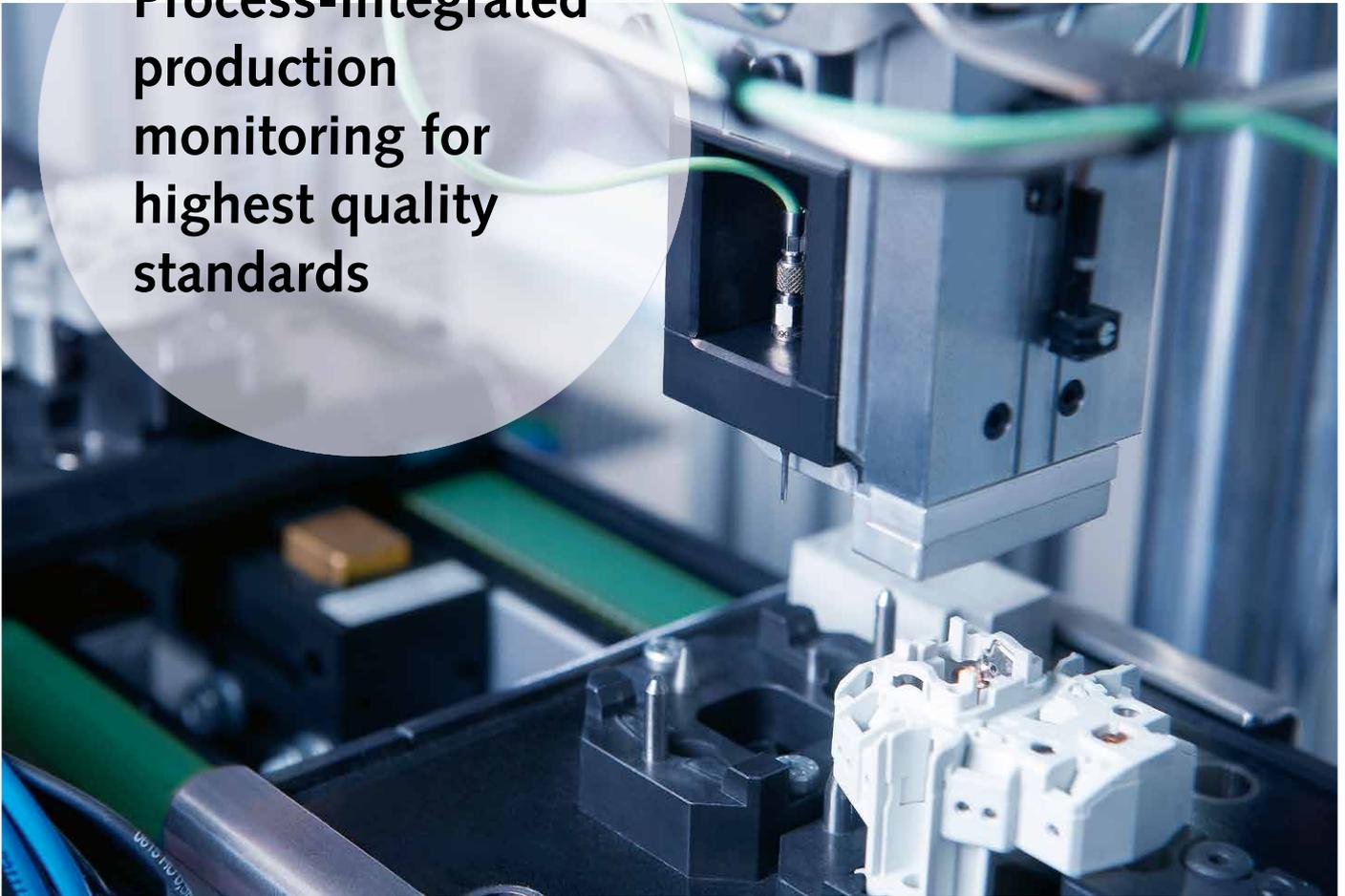


KISTLER

measure. analyze. innovate.

**Process-integrated
production
monitoring for
highest quality
standards**



Quality assurance in industrial production

Reproducible quality with Kistler force-displacement monitoring

A look at Feller AG in Horgen makes it clear: highly-automated production with integrated quality testing is a central pre-requisite for the Swiss manufacturer of switches and sockets. Feller's quality assurance system has been equipped with Kistler technology since 2008, ensuring that rejects are removed from production at the earliest possible stage. This optimizes the added-value chain in a sustainable manner.

The market that Feller AG – the Horgen-based switch and socket manufacturer – supplies is extremely dynamic and places highly stringent demands on both, management and production. Since 'quality' plays such a fundamental role for the Swiss market leader in electrical installations, manufacturing is carried out wholly on-site in Switzerland. At first glance, it may seem that Feller would benefit from the lower production costs achieved by manufacturing in a low-wage country, but the pitfalls would be considerable. The company could run the very real risk of producing unchecked, defective parts such measures could ultimately paralyze the entire installation for months on end. Feller's declared objective, therefore, has been to establish real-time, zero-defect production locally and thereby achieve sustainable optimization.

The success factor: zero-defect production

Peter Suter is group manager for automation at Feller AG and is responsible for ensuring trouble-free production. He confirms that zero-defect production is a fundamental criterion for market success today in the field of electrical installation: 'The requirements for quality are continuously increasing. Over the years, tolerances for acceptable waste have become more and more stringent, something that is also reflected in the requirements for continuous process improvement and associated quality tests. As a result, it is not surprising that the aim of the fully automated process at Feller is the final testing of each individual product.'



Switch with rocker installed

In 2008, new standards for switches and sockets in the Swiss energy market presented new challenges for Feller. Based on these new stipulations, a completely novel production line was implemented in the plant. 'One requirement for the new production line was to guarantee quality standards using force/displacement monitoring. This was part of the design specification presented to the mechanical engineer. To monitor the caulking at the rocker switch, Insys from Münsingen proposed using Kistler technology. The new production line – equipped with Kistler sensors – was commissioned in 2008,' Suter summarizes.



'Installation of Kistler's low force sensors provides a closed system that supplies reproducible, reliable values and brings quality assurance to a completely new level.'

Peter Suter, Group Manager for Automation Feller AG
Feller AG, Bergstrasse 70, 8810 Horgen, Switzerland, www.feller.ch

Kistler – the first-choice partner

In 2011, the continuous increase in quality requirements resulted in the need to check the switch functionality when it was installed (in addition to the caulking of the rocker switch). Suter explains: 'In this context, the switching point of the switch is tested again in a further step. The aim here is to ensure that any switches that are not 100 % in order do not generate further costs. All switches that do not meet the desired functionality, or require excessive effort to switch over, are removed from the process directly in the course of this test.' The solution for this second application was developed specially by Feller. As the company was satisfied with the force/displacement monitoring solution from Kistler, it was clear that the company's technology should be adopted to perform this testing. The existing installation scenario did not, however, produce optimum results. Feller discussed alternative solutions with the Kistler team and subsequently implemented a Low Force Sensor. Suter is more than happy with the result: 'Due to the low forces and confined space, our alternative solution implemented Kistler's Type 9215 sensor (the Low Force Sensor). Thanks to the optimal installation and the minimized design, this solution delivers a high force resolution today. Installation of Kistler's Low Force Sensors provides a closed system that supplies reproducible, reliable values and brings quality assurance to a completely new level.'

Top results thanks to Kistler technology

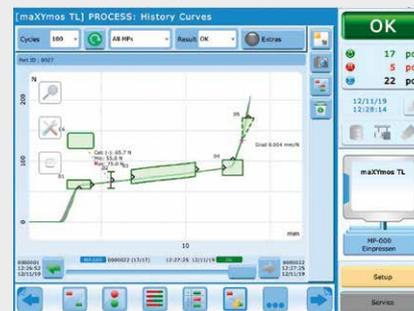
An innovative spirit, quality consciousness and commitment are all deeply embedded elements of Feller AG's corporate structure, and they characterize the company's work day-after-day. Feller's customers appreciate this: they trust the company's products and have made Feller the Swiss market leader in the field of electrical installation. The fact that the company relies on Kistler technology as it looks to the future is easy to explain, according to Suter: 'For the initial delivery, Kistler was recommended to us by our machine suppliers – and thanks to the company's good reputation in the industry, we did not question this. In the case of the second requirement, which Feller retrofitted into our existing plant, the positive experience from that first application meant that Kistler was the only company we considered for the job.' For Feller AG, this has paid off one hundred percent: 'Our production is highly efficient and delivers verified, 100 % defect-free parts today!'

Maximum control for your processes

XY monitors by Kistler continuously check and evaluate the quality during manufacturing, mounting and product testing processes.



XY monitoring with maXYmos TL (Top Level) und maXYmos BL (Basic Level) for in-process quality monitoring and product testing during joining and mounting processes



The XY maXYmos monitors oversee and evaluate the quality of a product or production step on the basis of two measured variables in relation to one another

Benefits of XY monitoring with maXYmos

- Easy to integrate within existing facilities and processes
- Intuitive and standardized handling concept
- Powerful diagnostic tools
- Extensive options for fast detection of quality NOK causes
- Standardized interfaces
- Identical signal and data formats

Further information about the application

www.kistler.com/maxymos

Kistler Group

Eulachstrasse 22
8408 Winterthur
Switzerland
Tel. +41 52 224 11 11

Kistler Group includes the Kistler Holding AG and
all its subsidiaries in Europe, Asia, Americas and Australia.

Find your local contact on
www.kistler.com

KISTLER
measure. analyze. innovate.