



Olaf Hohage,
Managing Director of fastener maker
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Reliable detection of even the smallest tool breakages and chips!

Most fastening elements today are automatically processed and assembled. This is particularly true for the electrical industry which is a high volume user of such parts. Top priority is given to the quality standards of these mass produced components because even the smallest defect can have a severe impact on the functioning of automatic assembling lines. As a quality producer, Hohage has been relying for years on process monitoring provided by Schwer + Kopka on all of their cold heading and thread rolling machines. The newly developed Foxmatic-Technology now guarantees Hohage that its "recess drive" product line is consistently produced with the highest possible quality. Foxmatic applies a new set of algorithms to evaluate the consistency of the signal while inside of the standard control envelope. Normally, envelope monitoring stops the machine when a signal crosses an envelope limit. Foxmatic actually "targets" smaller force deviations associated with tooling cracks, chips, and breakages while the signal is still inside of the envelope.

Small issue - major impact: breakages and chipping of heading punches

"The integrity of the recess drives on our parts such as slots, cross slots or combinations thereof are of the utmost importance", states managing director Olaf Hohage referring to the significance of this quality feature. "Even small imperfections are causing huge problems on assembling lines because our customers cannot tighten the fasteners properly. Unfortunately, many recess punches have the tendency to fail prematurely before reaching their usual wear limits. Even small chips render the parts unusable because the fastening bits cannot fully enter into the recess and are unable to transmit the required torque."

Foxmatic convinces across the board

It is the goal of all fastener makers to be able to detect these recess tool failures by using process monitoring systems. "Unfortunately, we have to state that the changes in the forming forces caused by these errors are so minute that even perfectly set envelope limits are incapable of seeing the defects" describes Olaf Hohage. "But there is a solution now: we have tested the new **Foxmatic** technology intro-

Company portrait

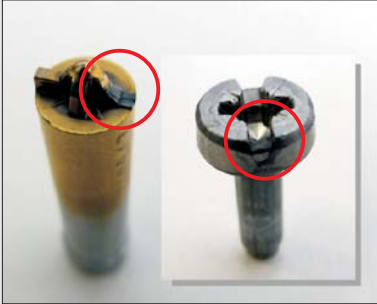
Hohage GmbH & Co. KG, located in the small town of Kierspe, is a leading supplier of reliable and cost effective fastening elements for more than 60 years. The company focusses on threaded fasteners for the electrical industry.

Hohage employs a series of high speed cold headers and thread rollers to manufacture parts in the size range of M2,5 to M8 in diameter. The company stands for manufacturing high quality products in large quantities, supplying their customers on time and maintaining a high degree of flexibility.





Example of small errors which were detected by **Foxmatic** at Hohage Fasteners:



Partial breakage of struck slot



Flaking/chipping on the surface



Tiny chip



duced by Schwer + Kopka on several cold heading machines, and we are truly surprised how reliably Foxmatic reacts to even the smallest errors. We, as well as most experts in the industry thought that detecting such errors would be impossible!"

Obviously, such enhanced error detection mandates that all relevant process parameters such as material quality, machine condition, and tooling set-up are kept under control. The lead set-up man at Hohage Fasteners is Waldemar Hihs, who has been with the company for more than 12 years. He knows that his machines must operate consistently with the least amount of variation possible in order to achieve good results. "Due to near perfect error detection using **Foxmatic**, unwanted machine stops are virtually eliminated" explains Waldemar. "We don't need to set the envelope limits extremely tight any more, because **Foxmatic** is searching for our errors inside the envelope band!"

A big step towards zero-defect-quality

"We are now in a position to supply our customers with an even higher standard of quality" states Olaf Hohage summarizing the results achieved by having implemented the **Foxmatic**-technology. "In addition, we have reduced our production costs significantly. We are now using our tools until the "true end" of their life instead of changing the punches prematurely just as a precaution. Additionally, we now avoid producing part batches that are contaminated by just a few bad parts which used to go through undetected. We now are introducing **Foxmatic** to our thread rolling machines and are eager to find out which types of rolling defects will be detected by the new technology.



Managing director Olaf Hohage (l.) and the responsible machine operator Waldemar Hihs (r.) are evaluating a detected punch failure which normally would have led to large amounts of scrap or even customer complaints.



Waldemar is relying 100 % on the performance of his **Foxmatic** monitoring technology: "Since this system is working on my machine, not a single punch failure has gone undetected!"