

PURESTEEL® BELTS USED FOR PRECISION MEASUREMENT TECHNOLOGY IN THE AUTOMOTIVE SECTOR

THE SITUATION

The automotive industry must subject itself to increasingly stringent regulations when it comes to vehicle safety and quality controls. As a result, it's also essential to improve the quality and reliability of the individual components from which the vehicles are constructed. Companies put each part through its paces with reinforced controls and the finest measuring technology before incorporating them into the construction of a vehicle.

OUR CUSTOMER

[MDS Maschinen und Werkzeugbau GmbH & Co. KG](#) has been a system supplier for automated connection technology for more than 50 years. MDS offers holistic solutions from a single source and is known for the production of high-quality fasteners.

The various fasteners—including press-in or blind-rivet nuts, spacers and various bolts—are subjected to rigorous quality testing. All connecting elements are subjected to an automated 100% test concerning optically measurable dimensions before they are sent to the respective customer. The fasteners are measured by a camera system to within 0.1 μm and automatically sorted according to “OK” and “NOK” parts.



THE CHALLENGE

The measuring system couldn't prevent the belt from running off to the side, which made it necessary to constantly monitor the position of the belt and regularly correct it by hand. In addition, it led to increased wear on the belts as a result of additional mechanical loads on the drive pulleys.

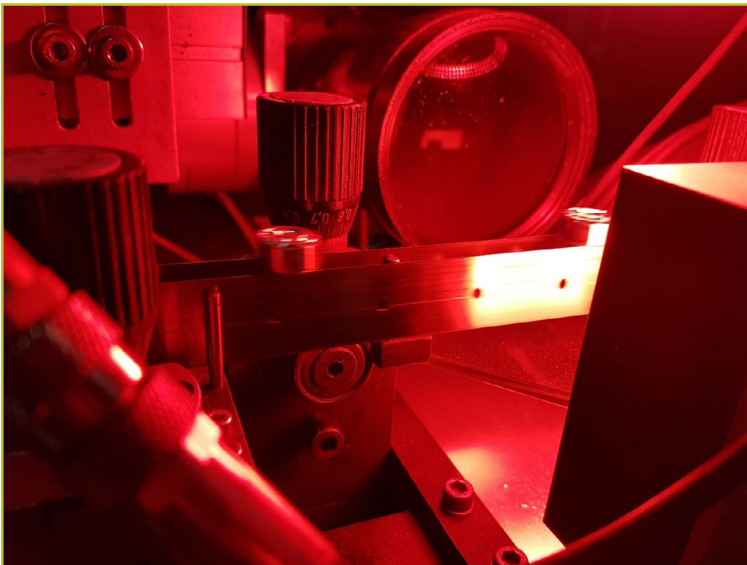
The challenge was to reduce the wear on the belts and prevent them from running out to reduce the pseudo-waste proportion of the measurements. Since all pseudo-reject parts are fed back into the system to remeasure, this would reduce process times while also offering a financial advantage through fewer NOK parts.

THE SOLUTION

In cooperation with MDS, we put the measuring system through its paces. We discovered the vertical alignment of the belt and non-ideal roll holders led to lateral movement and caused the tearing of the hole pattern since the timing elements were hitting the edge of the hole. Since timing was not necessary for the measured parts, we removed the timing elements and used a bare belt.

To improve the tracking of the belt and guide the belt centrally, we optimized the roll holders to make the finest adjustments to the angle of the axle. We also applied a narrow silicone coating to the middle of the pulleys to center the steel belt and prevent bending stress compared to a crowned pulley.

Additionally, we offered laser cutting of the steel belt to halve the tolerance for edge straightness. This prevents the nuts from being raised and lowered, so they can be transported with high precision on the belt edge past the sensitive camera technology.



THE CONCLUSION

The service life of the belt has been increased many times over, while the process times for camera inspection of the fasteners and the maintenance effort of the test system were significantly reduced. While the delivery of our PureSteel® belts with precise laser cutting is still pending, the customer has already experienced the benefits and would like to build on this success.

Please do not hesitate to contact one of our sales engineers today if we can help you with the use of a steel belt in your application. Find out more about Belt Technologies and our PureSteel® belts at belttechnologies.com.