Optimization potential at the touch of a button

When cutting hot-formed parts, lightweight design specialist, GEDIA, relies on laser cutting machines from TRUMPF. A total of eight TruLaser Cell 8030 units are in use at the Attendorn site, with six of them in the hot forming area. "In Attendorn we have two hot-forming lines. After forming, the components receive their final contour on the TruLaser Cell 8030," explains Ibrahim Yorulmaz, Laser technology supervisor at GEDIA. "In this last process step, it's vital that nothing goes wrong. Machine breakdowns or incorrect processing are particularly costly and annoying when it comes to valuable hot-formed parts." GEDIA works with the contour layer model. That means that the laser systems are in operation 24/7 and must be able to withstand a lot. GEDIA have long been keen to fit the machines with Condition Monitoring. A test in the cold forming area failed in the series implementation because too many different pressing systems with variable press forces from different manufacturers could not be reconciled. When TRUMPF offered a test partnership for extended Condition Monitoring for the TruLaser Cell 8030, GEDIA was immediately on board.

GEDIA Gebru□der Dingerkus GmbH

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Family-owned company GEDIA was founded in 1910. It develops and manufactures structural components and assemblies for automobile bodies and chassis, functional components for crash requirements in vehicle construction and engine components for the international automotive industry. The company is based in Attendorn, North Rhine-Westphalia, and employs around 4,300 employees worldwide in nine production centers in the USA, Mexico, Poland, Spain, Hungary, India and China. As well as expertise in all standard technologies in automotive lightweight construction, GEDIA also continuously builds on their skills in future technologies and is involved in many joint ventures and research enterprises.

NUMBER OF EMPLOYEES	INDUSTRY	LOCATION
4,300	Automotive industry	Attendorn (Germany)

TRUMPF PRODUCTS	APPLICATIONS
TruLaser Cell 8030	Laser cutting

Challenges

As in any highly automated series production, machine downtimes are also a red flag for GEDIA. Although the total of six TruLaser Cell 8030 units in the hot forming area are stand-alone machines, they

are an essential part of the process chain. A malfunction in a laser cutting machine has an effect on production as a whole. In spite of this, GEDIA, like most other series production manufacturers, employs a "run-to-failure" strategy, where the machines run until they break down. With Condition Monitoring, the GEDIA maintenance team want to be able to prevent this in the future.

For Ibrahim Yorulmaz, just as interesting as the condition monitoring of the laser systems is information that can be transferred specifically to quality optimization or even troubleshooting in the manufacture of individual products: "With the help of our Production Data Acquisition system, we can see which component has run on which machine, but that's about it. If there is a production error, it is difficult to determine the cause and we therefore cannot initiate any optimization measures. We wanted a solution that would give us the detailed information we need to make improvements."

Ibrahim Yorulmaz was also concerned about the traceability of NC program changes: "Even minor incorrect adjustments at the starting point of a software program can have an impact on cutting quality. And with hot-formed parts, that can get expensive quickly. Finding out when and why a program was changed, and who changed it, was until now pure detective work."

"The evaluation of the laser data has only advantages for us and no disadvantages. Without the exchange and analysis of data, we could say goodbye to Industry 4.0."

IBRAHIM YORULMAZ
LASER TECHNOLOGY SUPERVISOR, GEDIA GEBRÜDER DINGERKUS GMBH

Solutions

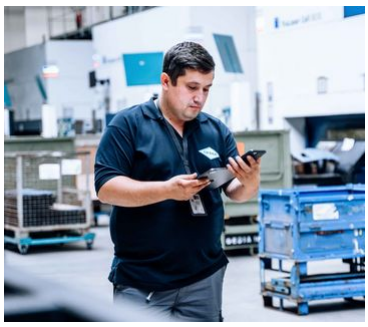
In order for GEDIA to use Condition Monitoring, TRUMPF specialists initially set up the data transmission of the six TruLaser Cell 8030 units in the hot forming area. Although the IT security guidelines at GEDIA are also very strict, connecting the laser system to the secure Factory Gate was no great obstacle, says Yorulmaz. "The communication between our IT team and the experts from TRUMPF went smoothly.

The Factory Gate is a secure connection and the evaluation of the laser data has really only advantages for us. Without the data exchange and analysis, we could say goodbye to Industry 4.0." After almost a year in test operation, Yorulmaz was also completely convinced by a new feature of the Condition Monitoring solution from TRUMPF. "I am personally really pleased with the production reports, and I use them daily," he says. "The details listed here are impressive." The production report doesn't just show which component type is being manufactured on a certain machine, but also which errors have occurred and which malfunctions these errors caused.

"If the report shows me that there is always a problem with micro-collisions on a certain component, it is an indicator that the software is faulty," says Yorulmaz. "And the best is that we don't have to spend a lot of time searching for the error, because the production report shows exactly which part of the software the error came from, making the production report a very useful tool," says Yorulmaz. "We get a lot of item-specific information from the report that we can use to derive valuable optimization and action potential from." And even with program changes, searching for error sources is a thing of the

past. "Sometimes, due to the tolerances of different machines, minimal adjustments to cutting programs are necessary," explains Yorulmaz.

The new NC program change report now indicates which software changes were made, by whom and when. "This really makes things a lot easier for us, especially when processing complaints," says Yorulmaz. "With our contour layer model, we always had to first identify the layer in which a change was made and then which team member was working at that time to then find out the reason for an adjustment: pure detective work." Condition Monitoring of the laser systems, on the other hand, is the focus for GEDIA's maintenance team. "The machines are very robust, but we already have a case where the TRUMPF specialists, using the laser data analysis results, notified us that urgent action was required for one of our lasers," explains Yorulmaz. "We were able to rectify the problem in coordination with TRUMPF and therefore avoid serious machine damage."



Implementation

"TRUMPF was, both before and during the Condition Monitoring testing, solution-oriented as usual," says Ibrahim Yorulmaz. "It was of course brilliant that TRUMPF, with Condition Monitoring and the associated production and program change reports, had exactly what we wanted. And all of it at a high level of maturity." As a test partner, Yorulmaz feels he is being taken seriously. In regular coordination meetings, the TRUMPF specialists gathered feedback from the users at GEDIA. "The experts at TRUMPF listened to us and, where possible, put our customization requests into action," summarizes Yorulmaz. "I can't remember a single situation where there was a problem with something. It was simply a joy to work with them."

Looking ahead

Currently, GEDIA is also testing Smart View from TRUMPF: clear dashboards for visualizing current laser states. Ibrahim Yorulmaz has particularly high hopes for the reporting system, which can be tailored to individual customer requirements. "For example, I can assign certain error messages directly to specific email distribution lists," he explains. First, however, GEDIA is getting their subsidiaries involved with Condition Monitoring. Ibrahim Yorulmaz and Marc Rauterkus, Project Engineer for Forming Technology at GEDIA, received detailed information about the advantages of the solution at an international workshop. In the final stage of expansion, they would like to bring all the lasers of the subsidiaries together into a common network.

Find out more about our products

Condition Monitoring

With Condition Monitoring, Technical Service experts and algorithms monitor the laser. The proactive analysis increases the technical availability and productivity of networked lasers.

Zum Produkt

Industry 4.0 starter package

The Industry 4.0 starter package is comprised of the Services Production report and Condition Monitoring, including the Condition Report. It guarantees full transparency of your machine productivity.

Zum Produkt

https://www.trumpf.cn/en_CN/solutions/success-stories/success-story-of-our-customer-gedia-gebrueder-dingerkus/