DANIEL KURR

Color play instead of search game: AI helps with sorting

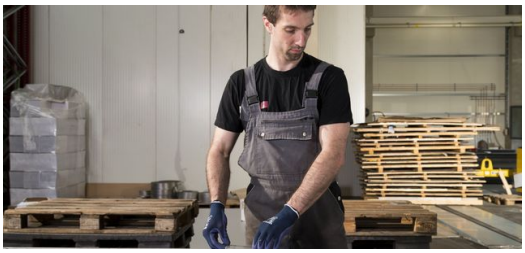
Some solutions are eagerly awaited: for example, one that supports users in removing laser-cut parts. That's exactly what the Sorting Guide from TRUMPF does. At Rolf Lasertechnik, it fires up the sorting turbo.

"Tobias Rolf, Managing Director of Rolf Lasertechnik GmbH & Co. KG, is always open to new solutions that advance his company. At the same time, he is quite critical: Not everything that promises advantages meets his expectations. But when he saw a prototype of the Sorting Guide in action for the first time during a visit to Ditzingen, he was immediately enthusiastic: "We have been thinking about the time-consuming sorting of laser-cut parts for a long time. This is a real bottleneck in production. When TRUMPF offered to test the system, we jumped at it."

Getting variety under control

Since its founding in 2005, the family-owned company Rolf Lasertechnik, based in Lotte, North Rhine-Westphalia, has developed into a successful contract service provider. Tobias Rolf and his mother Susanne have shared the management of the company since 2008. On a 3,500-square-meter production area with state-of-the-art machines, 40 employees work in three shifts to produce over 1,100 customer orders per month. The current 600 or so customers can place their orders on an online portal or directly with the sales team. They come from a wide range of industries - from agricultural machinery to mechanical engineering to steel construction. But Rolf Lasertechnik also serves private customers who need a part for their garden fence. They appreciate the solution-oriented, partnership-based cooperation. It’s the high quality standards and the fast delivery times that set the company apart. The diversity of the customers is reflected in the very large parts variance, explains Tobias Rolf: "We have 516 different types of sheet metal in stock and produce an average of 2,500 different laser cuts per week. From single pieces to orders containing up to 200 different items, we get everything in our customer orders."

Every week, Rolf Lasertechnik GmbH & Co KG produces around 2,500 laser blanks and processes around 6,000 metric tons of raw material for this purpose.



In the past, sorting out laser-cut parts was tedious puzzle work for operators. Printed views of the nesting programs served as orientation.

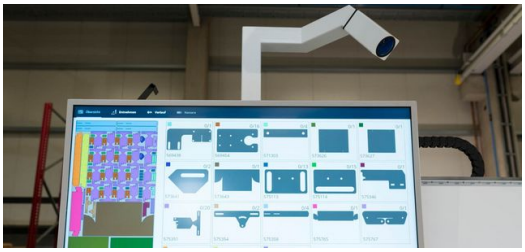
Today, all it takes is a glance at the Sorting Guide screen. The operator is shown a removal proposal on the large screen. All parts that belong to an order are color-coded.

Quickly cut, laboriously sorted

To use the raw material efficiently and save costs, Tobias Rolf relies on the know-how of five experienced programmers. He explains: "That's a lot of personnel in relation to the five laser machines we work with, but the commitment is worth it for us." On the sheets, the programmers nest up to 20 different customer orders with up to 60 different components. Although they make sure that the nesting is as structured as possible, the machine operators often work up a sweat when sorting out the finished cut parts. To simplify part removal, the programmers used to print out the views from the nesting program and mark the parts belonging to a job with colored highlighters. "The time required for this preparation was immense, and we still had to expect a certain error rate," explains Rolf, adding with a smile, "After all, there are people at the machine."

Perfect human-machine interaction

A high-resolution camera captures every part that is removed. The intelligent image processing of the Sorting Guide reliably detects it and reports the removal to the TruTops Fab production control.



The large screen of the Sorting Guide clearly displays the removal recommendation as well as all parts belonging to an order.

In test operation, the Sorting Guide was installed on a TruLaser 5040 fiber. In the meantime, Tobias Rolf has invested in a new TruLaser 5030 fiber - again with the Sorting Guide, of course.

The Sorting Guide from TRUMPF now makes life a lot easier for these people. In test operation, the camera-based assistance system was initially installed on a TruLaser 5040 fiber machine. The Sorting Guide consists of a high-resolution camera, a large screen and image recognition software. On the screen, the operator sees an image of the sheet on which all the parts that belong together are marked in one color. As soon as he has removed the first part, the camera recognizes which part it is, and the Sorting Guide only shows the parts in color that match the removed part. This provides the operator with a sorting recommendation. In addition, the information about which parts are being removed is sent to the TruTops Fab production control system, where they are marked for posting until the end of the sorting process. Rolf summarizes: "The Sorting Guide is easy to use, reduces the workload of our employees and minimizes the error rate enormously. If I assume a sheet on which several customer orders are placed, the saving in working time from programming to removal preparation to sorting amounts to around one hour per day." In a company that relies on fast turnaround times, that's a big deal.

When orders at Rolf Lasertechnik suddenly picked up again, Tobias Rolf didn't hesitate and invested in a new TruLaser 5030 fiber with a 6-kW laser - again with the Sorting Guide, of course. "Our production is already predominantly paperless," he explains with satisfaction. "Now that finally applies to sorting as well. The Sorting Guide is simply a perfect solution for us in every respect."

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