TUBE AND SHEET METAL CUTTING IN THE PRODUCTION PROCESS

Niverplast - NL

When looking for a compromise between "make or buy", a company often has to consider something more than just mathematics. In 2019, Niverplast, a Dutch manufacturer of packaging machines for the food and other industries, invested in a BLM GROUP sheet and tube laser cutting system and switched from outsourcing to internal production. "The approach was not necessarily to make it yourself at a lower cost, but instead to improve flexibility, increase speed, improve quality and get a better integration into our production process," explains the Operations Manager, Pelle de Jong.

Niverplast is owned by a global leader in its industry with development, assembly and sale of bag-in-box packaging lines and relevant consumable materials. Since its establishment in 1986, the family-run company has experienced solid growth. “We are in a niche market where we solve our customers’ problems with ready to use systems and meet the growing demand of packaging machines all over the world with our products.”

“Make or buy”?
Previously, the company produced part of its stainless steel frames and sheet metal in Central Europe. “When we discovered that we were spending a lot of time on repair work, we decided to do more on our own and to buy the necessary semi-finished products, sheets and tubes from Dutch suppliers. If you have outsourced 100 tons of cut stainless steel tubes and sheets per year, you can undoubtedly do it yourself more cost-effectively, in part because you can optimize the use of the material, but also because of the advantage obtained in purchasing and eliminating logistical movements. All in all, that advantage provided us with a sufficient margin to invest in our own machines,” explains Pelle de Jong.

BLM GROUP, the favorite
Niverplast’s journey started on YouTube. “I was not completely familiar with the process, so I started to look on the Internet. The BLM GROUP videos showed a fantastic solution for tube processing, both for the machines and the associated software. From the BLM GROUP concept we understood how their extensive knowledge of tube processing is the basis for the development of their tube laser cutting systems. Subsequently, also we contacted several tube laser suppliers and examined their systems at EuroBLECH. However, I was not convinced that they were ready in terms of hardware and especially software,” states Pelle de Jong.

High mix and low volume production
Cutting requirements of Niverplast vary from 1.5 to 15 mm of sheet thickness and primarily 3 to 4 mm of tube thickness. “We produce almost exclusively to order. This means mostly single parts and small quantities, a typical situation with small and highly diversified and batches. The Lasertube ADIGE LT8.10 was the best solution. We simply manually load the single tubes into the stepper loader at the front of the machine

> *“We produce almost only to order. Single part and small quantities, a typical situation suitable for a Lasertube: small, highly diversified batches.”*

> *With the enormous productivity of both sheet metal and tube lasers, both machines finish their work long before employees return home at the end of the day.*

for each new job. For sheet cutting, even though the choice between sheet lasers is much wider, it was obvious to us to also purchase the sheet laser LS5 from ADIGE-SYS, another BLM GROUP company."

100 tons in the first six months
Niverplast had three people attend the machine and software training course at BLM GROUP in Italy. After installation, it took them a week to practice on the machines. De Jong: "Thanks in part to the support of BLM GROUP's Benelux plant in Veghel we were able to start production quickly. In the first six months we had already cut our projected annual requirement of 100 tons."

Intuitive programming with Artube and Artube Automator.
BLM GROUP has developed its own Artube software to program tube laser cutting. Artube allows you to model tube sections in 3D in a very intuitive way, particularly suitable for designing complex structures, where the software automatically calculates the intersections among several tubes. "The CAD 3D projects are imported as models in the .xt or .step formats, then Artube creates the optimum cutting paths and automatically generates the part program. Now, we are making more use of Artube Automator, that allows automatic processing of the 3D files coming from the ERP to generate the CNC program. In theory, the job planner only has to create the nesting."

ERP to measure
The job planning department works with the BLM GROUP Protube production management system and receives the orders from the ERP system. The ERP is customized and developed by Niverplast in collaboration with an external developer to optimize the delivery to Protube and other software packages. Within the software, the 3D files are separated directly into sheet, tube, bent tube and other parts. "Starting from the bent tube parts, the bending program first calculates for the tube elongation due to bending and compensates for it correctly during laser cutting. All the recurring details are registered in the Protube database and therefore their reprogramming is not necessary."

Identification of cut parts
"We wanted to label each section of cut tube with a serial number and a QR code allowing us to easily retrieve all the detail drawings in the system during the follow-up process. However, nesting optimization in Protube generates a sequence of cut parts in an unpredictable order. To ensure a label is printed when the tube section is cut, we have developed our solution for this by using the tools provided by the Suite BLMelements by BLM GROUP. In this way, now we keep track of exactly which part is cut and the label printer prints the corresponding label at the same time as the cut part. Now we can identify each cut part and provide real-time feedback to the ERP that the product has been cut."

Ready to grow further
"Basically, we are a self-sufficient manufacturing company supplying the welding department and then the mechanical workshop. Thanks to the enormous productivity of both the sheet laser and the tube laser, both machines complete the jobs long before the employees go back home at the end of the day. We don't necessarily need to fill in this overcapacity, but it offers us space for the expected growth in the next few years," concludes Pelle de Jong.