



Best choice.

Niederönz, October 24, 2018

The fully automated Production Line

With the Production Line, Bystronic presents its highlight in terms of sheet metal processing. In this fully automated manufacturing solution, sheet metal parts are pre-processed, cut, handled, and sorted according to orders. The heart of the Production Line is the 10 kilowatt ByStar Fiber laser cutting system. An end-to-end software architecture allows all the other process steps to be seamlessly integrated.

How does sheet metal processing work in the age of automation and digital networking? With the Production Line, Bystronic presents a high-end solution that provides an answer to precisely this question. The Production Line is a fully automated manufacturing solution revolving around a fiber laser cutting system. The digital Shop Floor Control System integrates the Production Line into the existing sheet metal production environment. This guidance system enables users to set up a production landscape around the Production Line in which all sheet metal processing steps are seamlessly integrated. Thus, Bystronic is taking the next logical step towards integrated automation and networked system solutions.

The Production Line is capable of processing sheet metal parts both in large series and on a small scale. The integrated laser and automation technologies adapt flexibly to changing order situations while also enabling customized expansion with modular options. The idea behind this manufacturing concept is to combine versatility and productivity. Both are important requirements for industrial sheet metal processing. This combination is possible thanks to the modular design of the integrated systems and the software that digitally networks all the process steps.

10 kilowatt fiber laser accelerates the workflow

The heart of the Production Line is the ByStar Fiber 3015 laser cutting system. Powered by a 10 kilowatt aggregate, this is where the speed of the entire production process originates. Inside the ByStar Fiber are patented fiber laser optics. A cutting head developed in-house by Bystronic that precisely adapts the focal point of the laser beam to match the sheet thickness and material. This enables the fiber laser cutting system to consistently achieve the optimal processing quality in spite of varying sheet metal thicknesses and materials. Within the Production Line, the ByStar Fiber processes steel, stainless steel, aluminum, and non-ferrous metals such as copper and brass in sheet thicknesses from 0.8 to 25 millimeters.

With the ByStar Fiber, Bystronic demonstrates the full bandwidth of know-how in the field of laser cutting technology: machine design, cutting head, and the ByVision Cutting control software – everything was developed and implemented in-house by Bystronic's laser specialists.

Thus, Bystronic offers virtually all the performance-related components of the ByStar Fiber from a single source. This is particularly important with regard to the users' increasing quality requirements, which constantly drive the enhancement of technologies and manufacturing solutions.

Flexible automation directs the material flow

The ByTrans Cross loading and unloading automation is connected directly to the fiber laser. The automation unit's purpose is to ensure that the supply and removal of materials keeps up with the fast fiber laser. To achieve this, the ByTrans Cross supplies the necessary raw metal sheets and removes the parts and residual sheets from the fiber laser's shuttle table after the cutting process. For this purpose, the ByTrans Cross is connected to a material storage system. Here, all the raw metal sheets required for the cutting jobs are kept ready. The material storage system also handles the storage of finished cut parts and residual sheets.

In order to make the unloading of the laser cutting system even more flexible, Bystronic expands the unloading function of the ByTrans Cross with the BySort module. This makes it possible to deposit finished parts on additional unloading positions next to the laser cutting system. Among other things, this supports users with the processing of large series where the individual cut parts need to be sorted separately according to jobs outside of the storage system. BySort stacks the parts on material trolleys, pallets, conveyor belts, or even autonomous transport vehicles, depending on the requirements of the production landscape. A major advantage of BySort is that all parts are always accurately deposited in

the same position: a task that is difficult to accomplish manually, particularly when handling large cut parts. The accurate positioning of parts facilitates the automation of subsequent processes, because it allows the precise coordinates of the parts to be defined. After laser cutting, the parts are sorted by order and flow on to the next processing step: bending and finally to the shipping of the finished parts.

Showcase of new pre-processing solutions

Exclusively at EuroBLECH, Bystronic showcases solutions that in the near future will enable the Production Line to be expanded with value-adding processes for the pre-processing cut parts. ByFlex, an additional integrated system, drills and deburrs holes, and cuts threads, if required even with countersinks, into sheet metal parts prior to the laser cutting process. The integration of this solution, even before the actual laser cutting process, allows users to make optimum use of secondary processing time within the Production Line. In addition, a labeling function marks the parts that are to be cut with a code. This allows all the information about the sheet metal parts that are being produced to be scanned in at the downstream processing stations.

Guidance system controls networked production

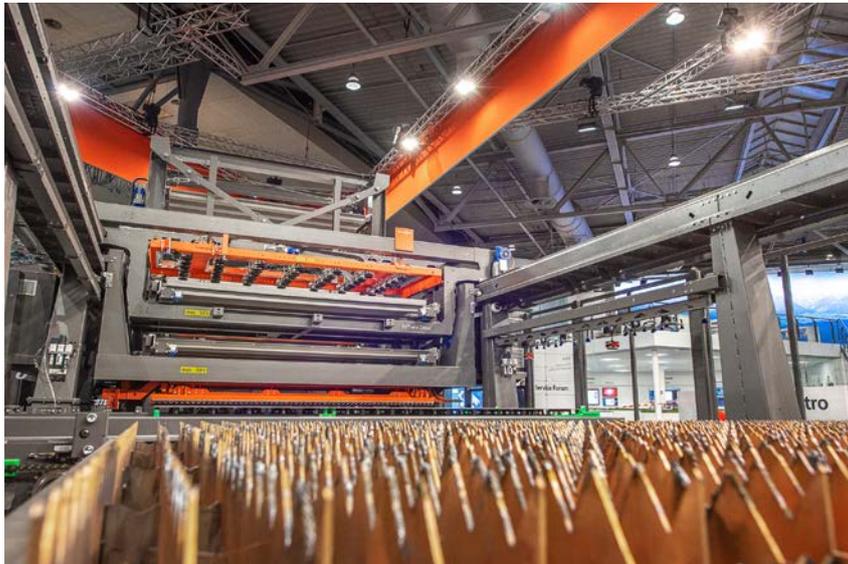
In view of ever-increasing networking and automation, sheet metal processing companies are faced with the question: How can complex production landscapes in which automated manufacturing solutions, such as the Production Line, and individual machine systems are networked

with each other be controlled and monitored? With the Shop Floor Control System, Bystronic is showcasing at EuroBLECH a newly developed software architecture for just this purpose.

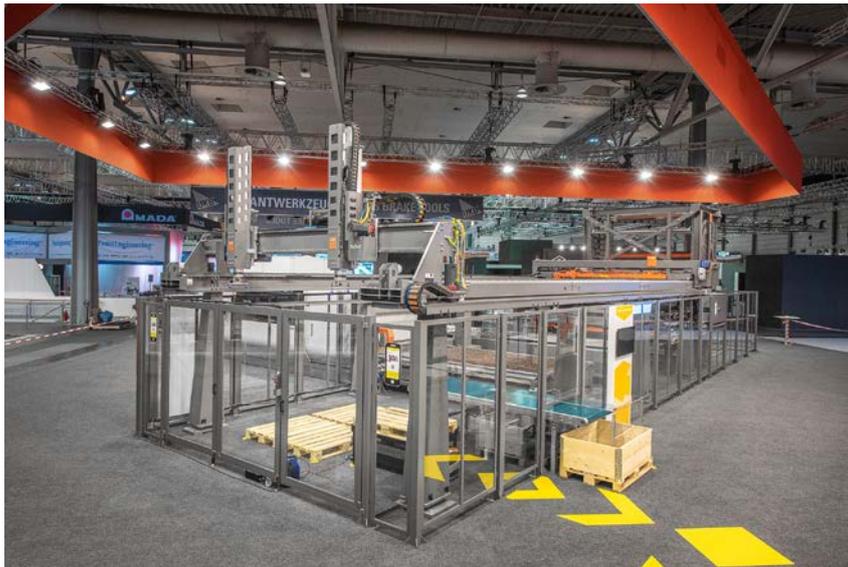
Networked with sheet metal processing stations, the Shop Floor Control System assumes the centralized control function and helps users to always maintain an optimal production flow, in which scheduled production times and delivery periods are reliably upheld. Laser cutting systems, bending machines, automation solutions, integrated robotics, and machines from third-party suppliers – all these must be coordinated in a networked production environment. In complex manufacturing landscapes, this is the only way to ensure that production orders progress smoothly through each process step. Within the Shop Floor Control System, each integrated system provides real-time information on the current order status, on necessary maintenance measures and updates, or on any malfunctions. All this information can be visualized on a control station. Here the production managers can see on screens whether all integrated systems are running smoothly and whether there are any warnings, which can then be swiftly dealt with.



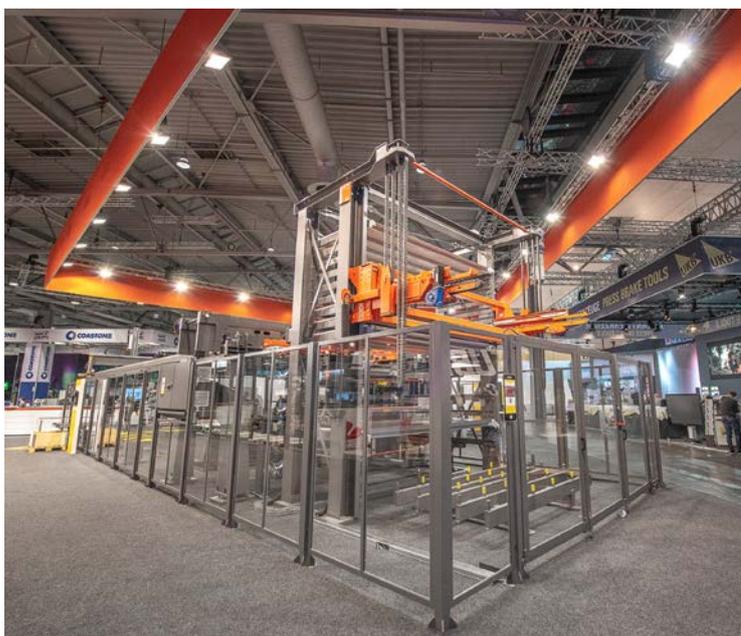
The ByStar Fiber is the heart of the Production Line. The fiber laser system is equipped with a powerful 10 kilowatt laser source.



The ByTrans Cross loading and unloading system is directly connected to the ByStar Fiber. It handles the entire material flow associated with laser cutting.



In order to make the unloading of the laser cutting system even more flexible, Bystronic expands the unloading function of the ByTrans Cross with the BySort module.



All required raw sheets are kept ready for use in the integrated storage system. The system also handles the storage of finished cut parts and residual sheets.



The integrated ByFlex system drills and deburrs holes, and cuts threads and countersinks into sheet metal parts prior to the laser cutting process.



The Shop Floor Control System simplifies the creation and the centralized controlling of a digitally networked production landscape.

About Bystronic

Bystronic is a leading global provider of high-quality solutions for the sheet metal processing business. The focus lies on the automation of the complete material and data flow of the cutting and bending process chain. Bystronic's portfolio includes laser cutting systems, press brakes, and associated automation and software solutions. Comprehensive services round off the portfolio. The company headquarters are located in Niederönz (Switzerland). Three additional development and production locations are located in Gotha (Germany), in Tianjin (China), and in Shenzhen (China). Bystronic is actively represented by its sales and service subsidiaries in more than 30 countries and has agents in numerous other countries.

As a reliable partner, Bystronic stands for high-performance innovations, local expertise, and service excellence. Since 1994 Bystronic has been a part of the Swiss industrial holding company Conzzeta. In 2017, with more than 2400 employees, Bystronic achieved a revenue of 774 million euro.

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