VERSATILE FIBER LASER

UP TO 4 KILOWATTS LASER POWER – IN EITHER THE 3015 OR 4020 FORMAT: BYSTRONIC HAS DEVELOPED THE BYSPRINT FIBER INTO A COMPLETE PRODUCT LINE. TWO USERS FROM FINLAND AND TWO FROM ITALY REPORT ON THEIR EXPERIENCE WITH THE VARIOUS VERSIONS.

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THE FINNISH HELSINGIN Levytyö Oy company is an exception. It only uses a single laser cutting machine – and that is a fiber laser. “All sheet metal parts with a huge number of holes, we process with a punch press,” designer Jan Träskman explains. The exception proves the rule – and that rule is that sheet metal processors first invest in a CO₂ laser; only later do they acquire a fiber laser as a complementary technology. The reason

Little maintenance, low electricity consumption, cutting fine contours: Sami Mäki, Managing Director of Laserkeskus Oy in Finland, appreciates the advantages of the fiber laser.
Fiber Laser + Automation = Cost-Effectiveness

Laserkeskus Oy is a job shop in Laitila, in the southwest of Finland. The 3-kilowatt BySprint Fiber 3015, which the company put into operation in spring 2012, is connected to a ByTrans Extended. In addition, Laserkeskus Oy operates four CO₂ laser cutting machines – two of which are from Bystronic. Sami Mäki is the Managing Director.

Sami Mäki: The advantage of the fiber laser over the CO₂ laser is that maintenance and servicing require less time. We do not have to change the cutting head, and so on. We also make savings in electricity and laser gas. Finally, the fiber laser allows us to cut more detailed contours.

BystronicWorld: Many companies offer fiber laser cutting machines. Why did you choose the BySprint Fiber?

S.M.: We were pleased with the quality of the test parts. But with the machine’s compact design, as well. And we wanted to connect the machine to a ByTrans Extended. Thanks to a combination of the BySprint Fiber’s high parts output and the automated loading, we are more cost-efficient than our competitors.

B.W.: Up to what sheet metal thicknesses do you use your 3-kilowatt BySprint Fiber?

S.M.: For mild steel, up to 6 millimeters; for stainless steel, up to 4 millimeters. We opted for the 3-kilowatt version because we always want to be laser technology pioneers. We are extremely satisfied with the quality of the cut parts – no burrs and less postprocessing.

“...we always want to be laser technology pioneers.”

for this is that – despite the major inroads the fiber laser has made into parts of the CO₂ laser market in recent years – the CO₂ laser remains the most flexible and, therefore, the best choice for many customers. Helsingin Levytyö Oy put its 2-kilowatt BySprint Fiber 3015 into operation in October 2011. Since last fall, Bystronic has been offering the machine with the additional options of a 3- or 4-kilowatt laser. The Italian job shop C.M.M. SRL, which tested and subsequently bought a 4-kilowatt version, uses its machine for cutting mild steel up to 8 millimeters, and for stainless steel up to a thickness of as much as 10 millimeters. Nevertheless, co-owner of the Italian job shop Marco Ghirardi says that the fiber laser was born primarily to cut thin sheet metal: “If you cut sheet metal thicker than 10 millimeters, it is unlikely that you make significant savings in energy costs.”

EXTREMELY FINE CONTOURS

Low energy consumption for cutting thin sheet metal: This is what users unanimously view as the main advantage of the fiber laser: “It is good for the environment and provides us with an economic advantage,” Marco Ghirardi says. He estimates that for thin sheet metal, the BySprint Fiber consumes roughly two to three times less energy than a CO₂ laser. However, according to Marco Ghirardi, the savings not only apply to energy costs, but also maintenance: “We require fewer spare parts for our fiber laser cutting machine than we do for our CO₂ laser cutters. This is because, among other things, the fiber laser machine does not have a blower, deflecting mirrors or a vacuum pump.” Another advantage of the fiber laser is its flexibility: “The thin laser beam makes it possible to cut extremely fine contours,” says Jan Träskman.

TAKE NO CHANCES

Currently, the market is flooded with fiber laser cutting machines by new manufacturers, Marco Ghirardi explains, noting, “Most of them come at very competitive prices, but I believe the manufacturers are lacking the necessary experience.” He says that he chose the Bystronic machine because he had not been willing to take chances: “We bought our first ByStar in 1995. We know the people who work at Bystronic, and if we have a problem we are sure that they can solve it.”
Large Format for Fewer Offcuts

“In our opinion, the 4020 is the best format for minimizing offcuts.”

C.M.M. SRL is an internationally active job shop, located in Medole, northern Italy. The company uses two Bystar, and eight laser cutting machines for tube processing. In July 2012, C.M.M. put a 4-kilowatt BySprint Fiber 4020 into operation as a test machine, and subsequently bought it. Marco Ghirardi is a co-owner of the company.

Marco Ghirardi: We bought the BySprint Fiber because it worked very quickly and reliably during the test phase. I believe we needed this laser cutting machine to remain competitive in the sheet metal processing market.

BystronicWorld: Where do you see the advantages of the fiber laser, compared to the CO2 laser?

M.G.: I see four advantages. Firstly, the fiber laser consumes less energy. This is good for the environment and gives us an economic benefit. Secondly, the fiber laser is easier to operate because we do not have to change the cutting head, there are no deflecting mirrors, and no external gas mix. Thirdly, it is able to cut nonferrous metals. And finally, we require fewer spare parts because, among other things, the machine does not have a blower, a vacuum pump, or oil that needs to be changed.

B.W.: Why did you choose the large 4020 format?

M.G.: We have only ever had 4-by-2-meter machines from Bystronic. In our opinion, it is the best format for minimizing offcuts. In addition, we simply want to offer our customers slightly more than our competitors – who tend to use the 3015 format.

The Stil SRL company is a job shop that is located near Bergamo, northern Italy. In addition to its 3-kilowatt BySprint Fiber 3015, which was installed in November 2012, the company also uses a BySprint 3015 – also with 3 kilowatts of laser power. Gioacchino Ferrari is one of the four business partners behind Stil.

Gioacchino Ferrari: We simply achieve a better quality and a higher parts output with the BySprint Fiber than with the CO2 laser. Ultimately, this allows us to be more competitive on the market.

BystronicWorld: Why did you choose the BySprint Fiber from Bystronic?

G.F.: We also looked at another machine that was even faster than the BySprint Fiber. But after summing up the costs and benefits, we preferred the Bystronic machine.

B.W.: Up to what sheet metal thickness would you recommend using the 3-kilowatt BySprint Fiber?

G.F.: Based on the experience we have gained, we recommend using the 3-kilowatt BySprint Fiber up to a sheet metal thickness of 5 millimeters. Up to that point, it is more economical than a CO2 laser, and the quality of the cuts is very good.

More Kilowatts for Thicker Sheet Metal

“We recommend the 3-kilowatt BySprint Fiber for sheet metal up to a thickness of 5 millimeters.”

Gioacchino Ferrari
Helsingin Levytyö Oy’s production facility is located in Helsinki, in the south of Finland. The company produces its own products – such as stainless steel drains and channels, or decorative moldings – and it is also a job shop. Jan Träskman is a designer at the company, but he also prepares the cutting plans for the factory’s only laser cutting machine: the 2-kilowatt BySprint Fiber 3015 that was installed in October 2011.

Jan Träskman: We opted for a fiber laser because its energy consumption is very low. The same applies for its gas consumption. This means that we can save considerable costs. The fiber laser is extremely fast on thin sheet metal. And with it, we are naturally also able to cut exotic materials – exotic for laser cutting that is – such as copper or brass. In addition, the thin laser beam enables us to cut even finer contours than we could with a CO₂ laser.

BystronicWorld: How high is the demand for copper and brass parts?

J.T.: Not high. At first it was difficult to find customers with copper and brass parts suited for laser cutting. We had to explain to a lot of customers that nowadays it was also possible to cut these materials with a laser.

B.W.: Can your pressbrakes and welding stations keep up with the BySprint Fiber’s high parts output?

J.T.: That is not a problem. Our customers usually order small series; moreover, we also cut many large parts. Therefore, occasions when our workshop is clogged up with floods of small parts are extremely rare. Furthermore, most of the small parts do not require further processing. Of the orders that we process for third parties, only about 30 percent of the cut parts are handed on to bending, and roughly 10 percent to the welding stations.

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Jan Träskman