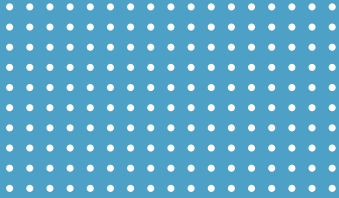




CASE STUDY
Dutton Engineering, UK



LVD PHOENIX LASER CUTS COSTS AND CUTS FASTER

A new LVD Phoenix 10kW laser at Dutton Engineering has halved cutting times, cut energy bills and eliminated a time-consuming finishing operation. The new 4m by 2m capacity machine joins a 4kW LVD Sirius CO₂ laser with a tower automation system and replaces an LVD Impuls CO₂ laser that was installed in 2005. As well as the lasers, Dutton also operates a waterjet cutting machine and a number of LVD press brakes. It complements these with manual welding capabilities, surface finishing and graining, bead blasting and assembly. It can also offer customers help with component design and development.

Dutton's Managing Director Andrew Read says: "We have a two-fold approach, offering both pure laser cutting and a complete fabrication and assembly service – and they are treated fairly separately.

"A lead time on fabrication may be 14 days, but on laser may be the next day to three days. So it is a much quicker turnaround. Which is great for us because it focuses your mind when somebody wants something the next day. And the number of hours you put into fabrication brings more added value into the business."

The Sirius laser, with tower storage and automatic load and unload, has been, and remains, the workhorse for large volume production.

"It literally revolutionised our ability to sell laser cutting services and works 24 hours a day," says Andrew.

The company processes over 500 tonnes of material a year, but rather than being a pure volume player it specialises in stainless steel.

"We don't try and compete on lots of mild steel because there are companies out there that will churn through tons and tons of thin mild steel every single day. Around 99% of our work is on stainless steel – in both pure cutting and in fabrication – and it is mainly destined for the food and pharmaceutical sectors."

This is a key differentiator, as customers in industries like these can't risk any mild steel contamination on their stainless steel products. Nevertheless, it is still a very competitive market and that is part of the reason Andrew decided to invest in a new fibre laser cutting machine.

Andrew explains: "CO₂ lasers are being superseded; they are not as cost-effective as fibre lasers. On a CO₂ laser the beam is delivered using mirrors and you run into problems with the consistency of the cut when the mirrors start to degrade. With the fibre you don't have any of that, the beam comes straight down an optic cable.

"You are also consuming significantly less electricity, and we have also noticed that we are using less gas too.

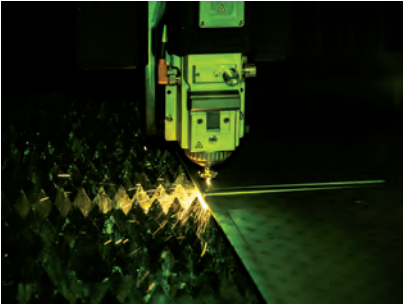
"Our electricity bill was huge and it has dropped by at least a third since we installed the new Phoenix. Just by replacing the old machine with a new one.

"It is also significantly faster, not just a little bit faster; you are talking twice as fast on some jobs. On some of the thinner material it is cutting faster than a minute a sheet."

Compared to waterjet cutting, the fibre laser is orders of magnitude faster on thick aluminium – work that Dutton sometimes has to do as part of a larger project.

"The normal range of material we cut on the laser is 3mm to 10mm," says Andrew. "Because we have the waterjet we would always use that if we had





thicker material to cut. We used to cut 20mm aluminium on the waterjet and it would take eight to nine hours to do a plate. We put that same plate on the fibre laser and it was done in 17 minutes.”

Finally, Andrew says that the repeatability is better. “Unlike the CO2 laser where you have to adjust it over time, once you have the controller set you have none of that. From an operating perspective it is much simpler. You just press the button and go.”

A major, unanticipated, benefit has come on cutting steel covered with plastic protective film – which is common on high-quality stainless steel work.



As Andrew says: “One of the major problems we have had for years is that the protective plastic coating on the stainless sheet gets stuck to it when you cut it. It leaves a black residue which is horrible to get off. It might take a minute to cut it and then 10 minutes to take the plastic off, it was horrendous stuff and the bane of our life.

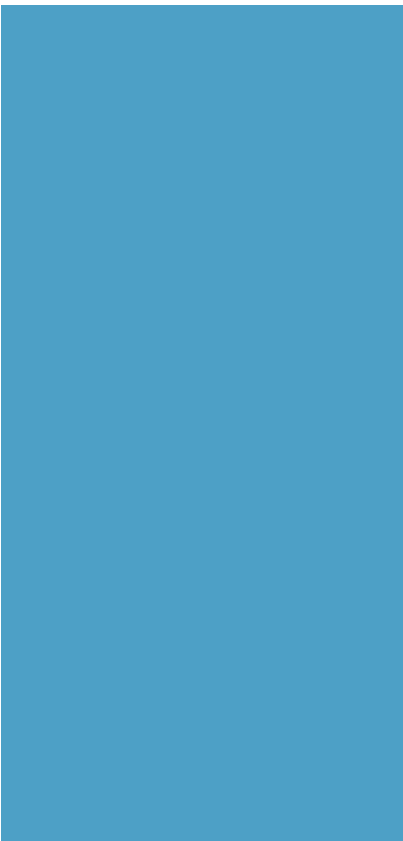
“Now, because of the power of the laser and the narrowness of the beam, the Phoenix fibre laser cuts the plastic with absolutely no residue. You cut the plastic film in one pass and then go back and cut the metal. That has been a massive saving for us and cut out a time-consuming manual operation.”

When choosing to buy LVD machines he says that reliability and ease of use are key factors.



“We have been a customer of LVD for many years and one of the reasons is that we know their machines are so reliable. With LVD you get a lot of machine for your money. A solid and robust machine with tried and tested, in-house built technology. We don’t want a complicated machine with lots of adjustments to make, we just want to cut metal. LVD has a simple controller and is easy to use. Everything else is taken care of – you don’t need a very highly skilled operator.”

He says that Dutton has been quite lucky during the Covid pandemic because of the markets it serves.



“We just carried on. There is always demand for food packaging machines and there has been more demand from the medical sector because of all the testing that is being done.

“That said, it is difficult to predict what is going to happen in the market over the next 12 months. The big pharmaceutical companies are only predicting a quarter ahead and large food manufacturers are hesitating before committing to new installations.”

This means that being flexible and cost-competitive are more critical than ever.

He concludes: “What we have to do is to try and get more out with less and be more efficient with the time we have. We have always made this assumption that we sell time, whether we are turning round sheet metal or whether we are going into a fabrication contract. So we measure everything down to the minute and you know the profit and loss as soon as it is finished and adjust accordingly.

“Not having to clean off the plastic residue, for example, saves so much time and gives a massive benefit on the bottom line. If the machine cuts quicker, that saves time, if it gives a consistent cut that doesn’t need a lot of finishing, that saves time, if I don’t have to train a highly skilled operator that’s another saving – you save electricity, you save gas. You are always looking for ways to reduce costs while being more efficient. That’s what the new LVD Phoenix laser does for us.”