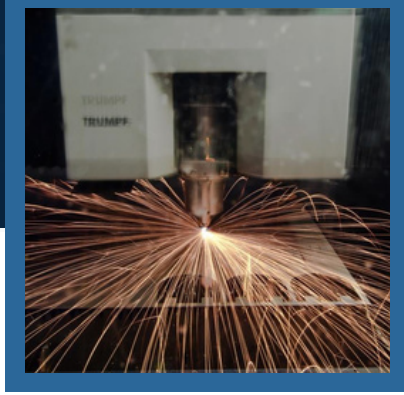


GF Laser & Cardio Caddy Case Study:

Laser Cutting

Folding

Powder Coating Solution



About GF Laser (GFL):

Offering laser cutting and folding solutions since 2006, GFL are one of the UK's leading subcontract flatbed and 5 axis laser cutting providers.

They have wide ranging experience in cutting and folding metal as well as providing ancillary solutions such as powder coating.

About Cardio Caddy:

CardioCaddy have over 10 years of experience in designing and manufacturing defibrillator cabinets with each cabinet proudly designed and made in Sheffield, England. A small but dedicated team with a passion for making life saving equipment more accessible to the public.

The Requirement:

Cardio Caddy required a total of 6000 parts across four variants using the following processes:



Laser Cutting



Folding



Press Braking



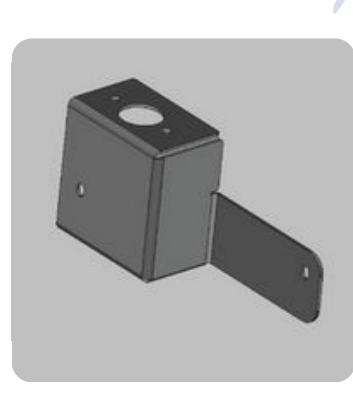
Machining



Powder Coating

GF Laser provides all these services to customers so were able to provide a solution that was competitive but didn't compromise on quality.

The Process:



Development



Laser Cutting



Press Braking /Machining



Despatch



Powder Coating



01 Development

Although GF Laser had supplied the machined part previously to Cardio Caddy the other three parts were new to GF Laser so the first step was to produce some samples prior to production.

These samples would then be checked by the Quality Team at GF Laser and the results fed back to the GFL Production Team.

This development process has been simplified in recent years with the introduction of simulation software that will make the necessary calculations to the laser cut blank prior to cutting.

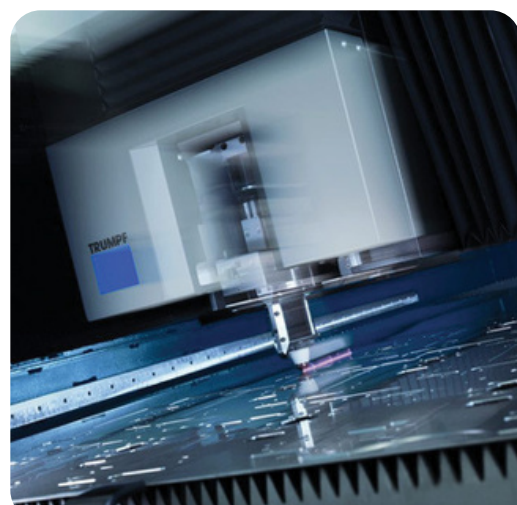
This cuts down on the amount of time required to produce samples.

The team at GF Laser use the latest software from Amada to undertake this simulation, the software is also used to check the feasibility of required folds and check for potential collisions with the pressbrake.

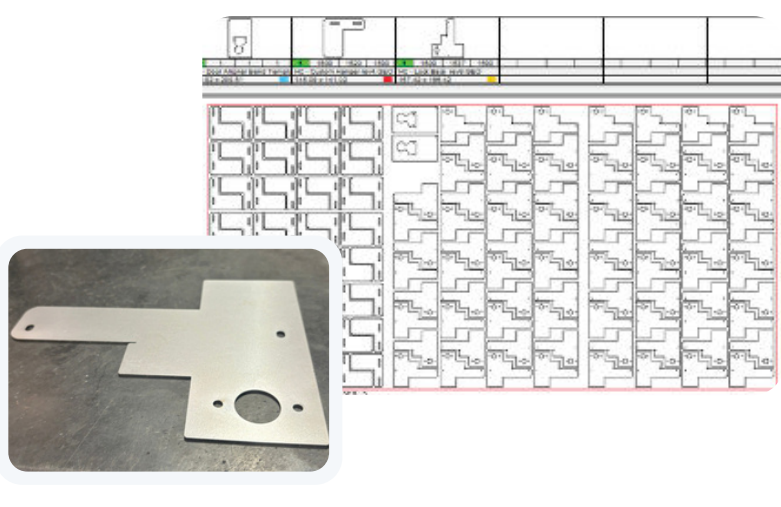
02 Laser Cut

Once all the development has been done and the initial samples approved all the parts are then nested using software that is integrated with the Trumpf laser cutting machines used by GF Laser.

The software ensures that the parts are nested to minimise material usage and also ensures that the parts will not tip risking damage to the laser head or the part itself.



The programmers also work with the operators to make sure that the necessary sheet cuts are put in place to make handling any scrap / offcuts.



03 Press Braking/Machining

After the parts are laser cut, they take different paths based on what needs to be done next. Three of the parts go to press braking and the other part goes for machining. Machining of the chamfer is straightforward and once the CNC machine is set then they don't require much manual intervention apart from the usual in process quality checks.

Two of the parts are quite simple with a single fold required, like the machining this is a straightforward process. However, there are a few more in process checks required with press braking as folding is more affected by external influences such as grain flow. The HC Lock back is the most complicated part required by Cardio Caddy with four folds required to produce the component.

When folding a metal part with several bends, precision at every step is crucial. Even slight inaccuracies in the early folds can accumulate, leading to a significant misalignment by the time the final fold is made. This is because each fold's angle and position depend on the previous ones being exactly right. If one fold is just a little off, it affects all subsequent folds, and by the time you get to the last one, that small error has grown.



04 Powder Coating

After being folded, two of the parts are finished and will be kept safe in our Goods Out area, ready to go. The other two parts still need to go through powder coating to get their final finish before the complete order is shipped to the customer.

As well as being aesthetically pleasing powder coating also provides a durable finish and protects the underlying mild steel from corrosion.

Before the parts are powder coated they go through a 3 stage spray degrease iron phosphate pre-treatment system where work travels through on an automatic conveyerized line.

- **Stage 1** - degrease iron phosphate applied at 40 – 50 degrees Celsius.
- **Stage 2** - rinse.
- **Stage 3** - final rinse.

This is then followed by drying for 10 minutes in a tunnel type drying oven.

05 Despatch

Once all the parts have gone through the necessary inspection processes members of the Production Team undertake a final audit check of all the parts checking that the correct quantities are ready.

In this instance the parts will be palletised and then plastic shrink wrapped ready to be despatched on one of our retained overnight pallet services.



"We have placed several orders with GF Laser and have not been disappointed with the quality or the price offered. The lead times are short and the service is always second to none, with rapid replies to queries and always a very professional service."

Ben Burnham - Operations and Business Development Manager