



What can I cut / Engrave on a Laser?

A question everyone asks if they haven't used or seen one before. This document provides a guide to what you can expect.

Material	Deep Engraving	Cutting	Surface Marking
Acrylics	YES	YES	
Coated metals			YES
Cardboard	YES	YES	
Delrin	YES	YES	
Stainless steel			YES
Anodised aluminium			YES
Veneer	YES	YES	
Fabrics	YES	YES	
Glass			YES
Timbers	YES	YES	
Laser rubber	YES	YES	
Ceramics			YES
Cork	YES		
Plastics	YES	YES	YES
Leather	YES	YES	
MDF	YES	YES	
Micro porous rubber	YES	YES	
Paper	YES	YES	
Polyester	YES	YES	
Stone			YES
Brass			YES
Polycarbonate			YES

Can you cut metal?

No, but we know a man who can so please speak to us first.

Metal cutting requires a powerful, industrial laser system. Metal cutting is often cut using a Plasma Cutter, or if you want clean, burn-free cuts, a waterjet system is used.

Alternatively, we have a CNC Milling machine that may be utilised for some jobs.

Can you mark metal such as Aluminium, mild steel etc?

Yes. Currently we use Cermark which is a coating that is applied to the metal prior to marking. It is permanent and nicely contrasting.

We will soon be installing a separate Fiber Laser to directly mark metal if there is sufficient demand.

How deep can we cut?

This depends on the material. Acrylic, for example can be comfortably cut to depths of 25mm or possibly more. Natural timber can be cut, but depths vary. Pine cuts much easier than Oak for example. Typically we can cut up to 3/4 inch of MDF but, like all natural materials, there will be blackened edges.

Is the cut straight?

A laser can cut a near perfect line across a piece of material. The profile of the cut though will not be absolutely straight. A laser focuses it's energy at a point but beyond that, the laser beam starts to "spread" or diverge. In thin materials you'll likely not even see this, but as you cut thicker materials there will be a slight but noticeable slant to the edge. This also varies depending on material. Acrylic tends to act as a waveguide for the laser beam so tends to cut "straighter" than, for example, wood.

Can you cut PVC?

No. PVC releases poisonous Chlorine gas when cut with a laser, and may also cause corrosion of the laser machine, so PVC is NEVER cut with a laser!

How fast does the laser cut?

Cut speed is dependent on several factors, including laser power, material type and thickness (as well as the manufacturer of the laser system). Ours is a Trotec Speedy 400 system and is incredibly fast and extremely accurate with a speed of around 355cm/s.

Can you engrave pictures onto materials?

Yes, absolutely. Pictures can be engraved onto a range of materials and we often are asked to engrave family pictures onto wood and even marble.

What is the maximum size that can be engraved or cut?

Our current laser can take materials that are 720mm x 420mm (29" x 17")

As of the end of June 2013, our new Trotec Speedy 400 arrives which has a standard bed size of 1000mm x 610mm (39 inches by 24 inches). However, it also has a pass-through feature, which means that it can take a maximum width of 1000mm (39 inches) and as long as you like (within practical limits!)

So, for example, we have engraved whole doors, and created long architectural pieces.

How thick (or deep) can something be - for example, can you engrave onto a milk crate?

The machine can take objects with a maximum depth of 300mm (12 inches) - so, yes, we can engrave onto a milk crate if it can fit inside the machine (1000mm wide x 610mm deep x 300mm thick). Maximum weight is 20kg. Wooden boxes, seed trays etc engrave well and make excellent personalised gifts.

Can you engrave hundreds of small items quickly?

The short answer is yes. Depending on the item, we may make a placement frame to allow accurate and repeatable placement of small items. For example, name badges are best held in a frame allowing 60 or so badges at a time to be engraved.

How long will it take for my items to be designed / cut?

It will depend on the size and complexity of the job. We typically turn jobs around inside three to five days for one-offs and small runs. We will provide you with an estimate before starting. Repeat jobs can be estimated much more accurately.

Can you handle rush jobs?

One of our strengths is flexibility. We can rush jobs to the front of the queue although there will be an additional charge for this (See ***Price List***)

Can you handle one-off or prototype jobs?

Absolutely. Actually it's really great to be able to work with someone to achieve something that perhaps neither of us know how best to do it. Speak to us and we can discuss what you would like to do.

Does Laser Cutting and Engraving leave burn marks - particularly on wood?

Depending on the material, you may get marks. MDF for example, tends to leave a slightly brown residue when being cut or engraved. This is unavoidable as it is the resins and glues used in the material burning off.

However, this can usually be easily cleaned off because it isn't actually a burn, or we can mask materials with transfer paper prior to cutting to ensure and residues are kept to a minimum.

However, the laser is literally ablating the material away and this transfers heat into the material, so edges of some materials (like wood) are brown as though burnt. It can be sanded, but is an inevitable consequence of using a laser.

However, some materials are perfect for laser cutting. For example, acrylics and lasers love each other. Acrylic edges have traditionally been flame-finished to slightly melt the marks of the cutting saws, whereas a laser does this naturally and leaves a nice edge.

Leathers and Felt tend to smell when cutting - like burning hair!... as they are natural products and respond accordingly to the heat of the laser beam.

Is laser cutting an expensive luxury?

It depends. If you are simply wanting standard straight line cuts, lasers can do it, but unless you need lots of very close, fine cuts, it perhaps would be worth having it done on a laser.

However, for curves, intricate cuts, and cutouts - it really is a cost-effective option. Actually, cutting is usually quite quick... the thicker the material, the slower it is. What can run time up with a laser is ENGRAVING - as it needs to traverse the material back and forth like a printer printing a picture... for something that is about 300mm x 300mm this will take about 30 minutes or so easily just to do the engraving. Cutting is then carried out after the material has been engraved.

However, we can optimise the process which can shave off considerable time by making certain engraving into a light "cut" process - which is considerably faster!

Every project is different. Ask us for a quote. As always, one-offs, prototypes and the initial setup for any job has setup costs, but once these are done, it is easy for us to price up multiples and repeat jobs because it is largely just 'laser time' plus handling / setup.

Material Costs? - how much are materials?

It depends on what the materials are. The material may need to be cut in order to fit on the laser bed which usually means the materials incur a cutting charge.

If you are supplying your own materials, first talk to us to ensure we can cut / engrave it. See the list above for suitable materials.

Secondly, it needs to fit onto our laser bed. (see **Maximum Sizes** above)

MDF is relatively cheap. For example, 6mm MDF is about £2 per sheet (610mm x 400mm)
4mm MDF is about £1.60 for the same size sheet.

We can supply certain materials (we keep stocks of MDF / Acrylic for example) or source materials if required. If you want to supply your own to save money, that is fine with us.