

Materials: General Information

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1. Which materials are particularly good for laser cutting with Mr Beam?

- **Wood:** laser plywood (poplar up to 4mm, birch up to 3mm), balsa wood (up to 4mm), kraftplex (up to 3mm)
- **Textiles / Fabrics:** felt (up to 6mm), jersey, cotton, etc.
- **Paper & Cardboard:** Photo paper, cardboard (up to 5mm)
- **Plastics:** acrylic (certain colours, up to 3mm), foam rubber (up to 20mm), foam (up to 20mm), polypropylen (up to 0,8mm)
- **Leather:** natural leather (up to 1mm), artificial leather (up to 1mm), vegan leather
Latex and natural latex (up to 1mm)

All specifications are maximum values under ideal conditions, which apply to our current model (Mr Beam II dreamcut [S]). Depending on which model you have, the software will show you up to which thickness you can process the respective material. Basically, the result also depends on the condition and quality of the material, **in this article** (<https://support.mr-beam.org/en/support/solutions/articles/43000658267-wood-can-no-longer-be-cut-properly-with-the-mr-beam>) you will find a detailed explanation for wood as an example.

2. Which materials are particularly good for engraving with Mr Beam?

- **Wood:** cork, bamboo, laser plywood, most of the wood types
- **Textiles / Fabrics:** e.g. coloured and thick textiles like jeans, jersey, felt, etc.
- **Paper & cardboard:** grey cardboard, packaging cardboard (single wave, double wave)
- **Stone:** e.g. slate, concrete, pebble
- **Stamping rubber**
- **Leather:** natural leather, artificial leather, vegan leather
- **Acrylic** (certain colours)
- **Mirror** (the backside)
- **Floormat:** e.g. coconut-fibre floormat
- **Dark or black anodized Aluminium** (please note that blank aluminium won't, as it reflects most of the laser light)
- **Other Metals** (only with the Mark Solid Spray **in our Shop** (<https://www.mr-beam.org/en/products/marksolid-lasermarkierspray-fuer-metall>), the engraving quality depends on the material composition)

(<https://store.mr-beam.org/collections/materialien>) (<https://store.mr-beam.org/collections/materialien>) (<https://store.mr-beam.org/collections/materialien>) (<https://store.mr-beam.org/collections/materialien>) (<https://store.mr-beam.org/collections/materialien>) (<https://store.mr-beam.org/collections/materialien>) (<https://store.mr-beam.org/collections/materialien>) (<https://store.mr-beam.org/collections/materialien>) (<https://store.mr-beam.org/collections/materialien>) (<https://store.mr-beam.org/collections/materialien>) **In our shop** (<https://store.mr-beam.org/collections/materialien>), we offer a range of material suitable for laser cutting and engraving with Mr Beam. You can find an overview of materials **on our website** (<https://www.mr-beam.org/en/materials/>).

And this is how our material library looks like in the Mr Beam software app, which we regularly update with new materials and laser parameters:

Material

© Die folgenden Voreinstellungen sind nur eine Orientierungshilfe; Du musst sie möglicherweise an Dein eigenes Material anpassen.

Material ☑ Materialien verwalten

Suchen...

Acryl	Eloxiertes Aluminium	Balsaholz	Bambusholz	Karton, einwellig	Karton, zweiwellig
Kork	Filz	Firnpappe	Schaumstoff	Moosgummi	Graue Pappe
Jersey Stoff	Kraftplex	Kraftplex (wave)	Leder	Spiegel	Papier
Sperrholz Birke	Sperrholz Pappel	Polypropylen	Schiefer	Veganes Leder	

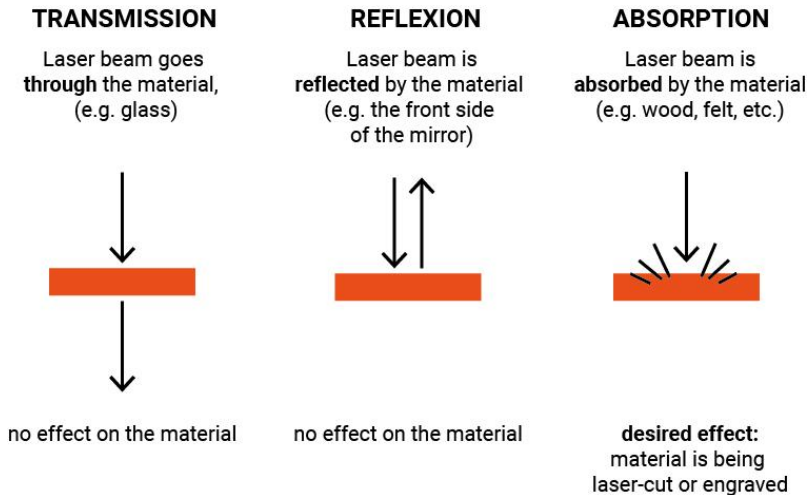
erweiterte Einstellungen anzeigen Abbruch Start

In the following we would like to explain why different materials react to laser-cutting or engraving in different ways, and what you should pay attention to when planning your next project.

3. What is happening with the material when it's being laser-cut or engraved?

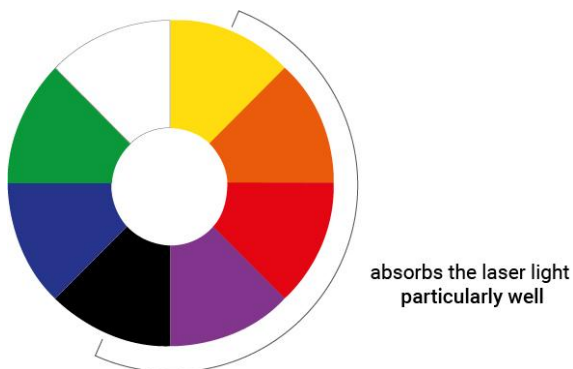
Laser cutting is a thermal process - this means the energy of the laser light needs to be **absorbed** by the material. The amount of absorbed energy is the amount of light which is not reflected by the material and is not passing through a (semi-)transparent material.

Example: A mirror is reflecting 100% of the laser light, a piece of clear acrylic is passing 100% of the laser light. In both cases the material **cannot be laser-cut or engraved**.



4. Why does the colour of the material matter?

The colors we perceive are the wavelengths a material reflects. **Black** objects, for example, reflect almost no light, **blue** objects reflect only light in the spectrum 440-470nm. All other light in the visible spectrum is absorbed. We have a **blue** laser beam (450nm), this means **blue** and **white** objects reflect the laser light best, while **black** objects absorb it best. Additionally, colors complementary to **blue** in the color circle (**yellow, orange, red**) absorb most of the blue light. The more blue light is absorbed, the better our laser cutter works.



Generally speaking: **The more blue light can be absorbed, the better can the material be cut or engraved by our laser cutter.** Lighter colours require more laser energy than darker colours. E.g. an orange felt is much easier to laser cut than white or light-blue. But apart from the colour of the material, other properties like material density and texture play a major role. Thus, in contrast to white felt, you can laser-cut or engrave white coarse paper fairly well.

5. Which materials **cannot** be laser-cut or engraved with Mr Beam?

Transparent, mirroring or very bright materials are generally very hard or not possible to laser-cut or engrave. This is true for most of the **metals, transparent acrylic or glass**.

Caution! Do not use materials which contain **PVC, vinyl** or other materials containing **chloride** for laser-cutting or engraving, as they will release muriatic acid. This is v

Can Mr Beam engrave the backside of electronic devices (e.g. smart phones, laptops or tablets)?

For safety reasons we *do not* recommend to laser or engrave any electronic devices with your Mr Beam, as this might damage both your electronic device and your cutter.

Is it possible to cut or engrave metals with Mr Beam?

Mr Beam cannot cut or engrave metals, as in this case laser beam is reflected by the material and thus has no effect on it. The only exception is **dark anodized aluminium**. The laser only removes the anodized coating, so there is no actual deepening in the material.

Can Mr Beam cut acrylic?

When working with acrylic, it's its **colour** which plays a very big role. **Red-ish, black and dark acrylics** up to 2mm can be cut with several passings with Mr Beam dreamcut. Blue and light colours cannot be cut, unfortunately. Have a look at our [article on synthetic materials and plastics](https://support.mr-beam.org/en/support/solutions/articles/43000580960-synthetic-materials-plastics) (<https://support.mr-beam.org/en/support/solutions/articles/43000580960-synthetic-materials-plastics>).



Can Mr Beam engrave glass?

Unfortunately, glass *cannot* be engraved with Mr Beam, as the blue laser beam transmits (goes through) the opaque material and has no effect on it.

 Preview

