

# Laser Cutting And sheet metal bending, the ultimate guide.

Get your files ready for  
laser cutting and bending  
for our platform in an  
easy way.

**LASERBOOST™**



*LaserBoost is designed to be easy and fast. Understanding some basic rules about our service is a key concept to boost the production of your file and our cutting process.*

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# LASER CUT

## 1 - Supported formats for laser cutting

We support a large number of vector formats, for these, our software is able to detect all the necessary parameters to show you a price on the fly.

Supported formats:



 For .svg, .ai and .pdf files, we recommend to check the measurements detected by our automatic tool, these can be edited in the configurator itself. The scale of the format may be altered depending on the version of the file or program with which it is created.

For Adobe Illustrator (.ai) and PDF files, the parts of the file must be fully contained inside the canvas during file export. E.g. Most templates start with a DIN A4 background. If the part measures more than the paper format predefined by the program, the size of the background canvas must be modified to a larger format.

If you have any questions regarding the creation of your document, please contact us at [info@laserboost.com](mailto:info@laserboost.com).

## 2 - Recommended software to create laser cutting files

All existing CAD software can save or export files in the formats we support in our configurator. Here is a list of the programs we recommend:

Software	LaserBoost Compatible Formats
Adobe Illustrator™	.dxf   .dwg   .ai   .svg   .pdf   .eps
Autodesk Autocad™	.dxf   .dwg
SolidWorks™	.dxf   .dwg
Inkscape™ (free)	.dxf   .svg   .pdf   .eps
QCad™ (free)	.dxf   .dwg   .svg
Autodesk Fusion360™ (free)	.dxf   .dwg

Adobe Illustrator™ and Inkscape™ are the most versatile, designed for both technical and artistic design, with a wide range of export formats options and easy to use.

Autodesk Autocad™ and QCad™ are the industry standard for 2D CAD drawing.

Solidworks™ and Autodesk Fusion360™ are 3D drawing software intended for engineering and mechanical design. Both can also export to 2D compatible formats.

Remember that it is necessary to upload the parts free of dimensions, boxes, drawing templates and in real scale 1:1 in millimeters.

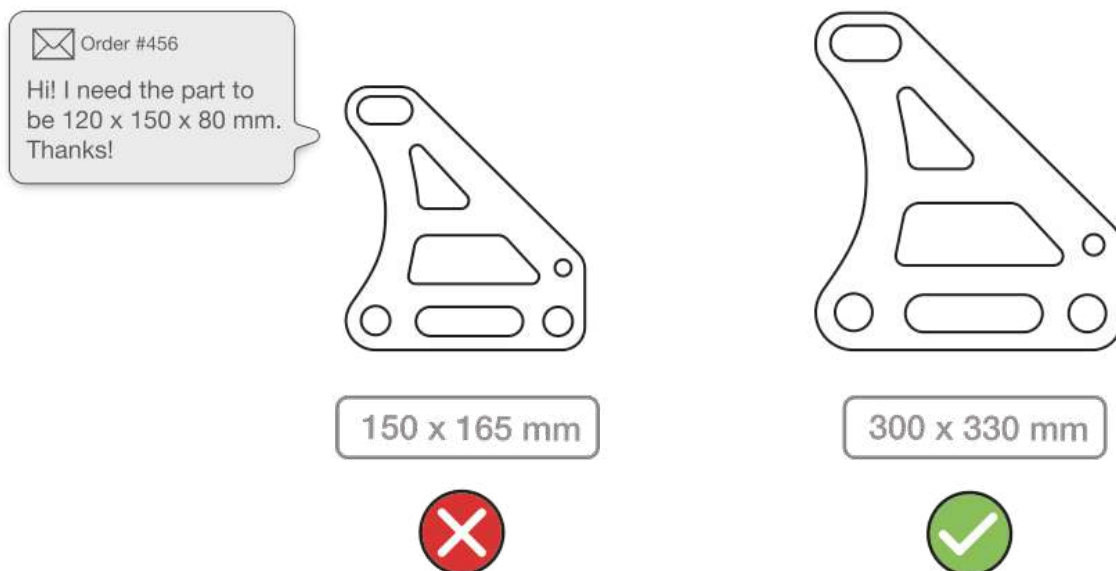
If you have any questions regarding the creation of your document, please contact us at [info@laserboost.com](mailto:info@laserboost.com).

### 3 – Getting your files ready for laser cutting

Here are the 4 basic points to keep in mind so that your parts are ready for our configurator.

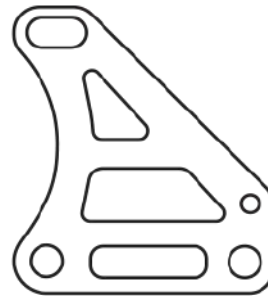
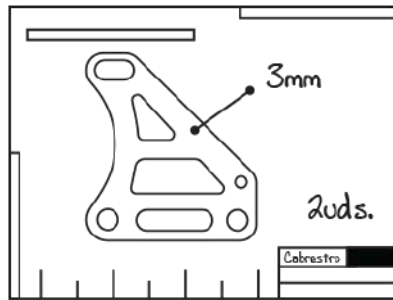
#### > Scale

Your part must be the exact size you want it to be cut, in 1:1 scale. If you want the part in a different size than the original you must indicate it in the configurator. The units in which you must upload your file are millimeters (mm).



## > Content

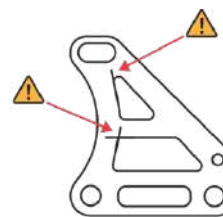
Your file should contain only the lines to be cut. To avoid problems and delays, your design should be free of dimensions, notes, borders and objects that should not be fabricated.



## > Lines and Shapes

Your designs must be free of open points and intersections. Our process handles all lines in your design as a cutting lines, so an open area will be left without a full cut and an intersecting lines will generate an extra cut.

Make sure your designs do not contain any of these elements if they are not really necessary.



## > Texts

There are some fantastic typographies, but we don't have all the existing fonts on our devices. To avoid getting the wrong view of your text we need you to convert the texts to outlines.



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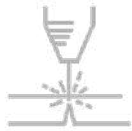
In most CAD programs, the functionality of converting text into shapes is called "explode" or "explode text".

In Adobe iLlustrator™ this can be done by selecting the text and clicking on the Text Menu>Create Outlines.



## 4 - Laser cutting process

Our precision and maximum measurements:



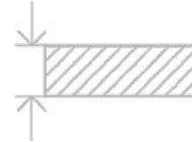
**$\pm 0.15$  mm**

Tolerancia de corte



**1000 x 2000 mm**

Tamaño de nuestros formatos de corte



**0.3 mm ~ 8 mm**

Esesor de corte

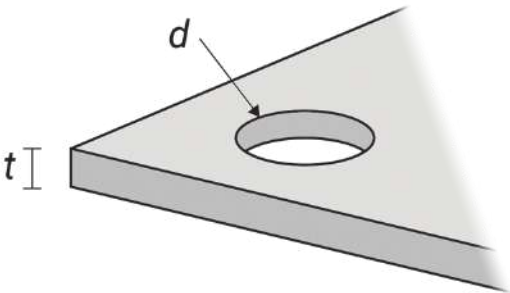
The dimensions of our sheet metal formats coincide with the maximum dimensions we can produce per part (1000 x 2000mm). If you need more space for your creations, please contact us at [info@laserboost.com](mailto:info@laserboost.com)

At LaserBoost we are open to special requests. If you need a material that is not in our online stock please contact us, we will look for the raw material in our authorized suppliers.

## > Limitations on shapes and holes

Our process has geometric limitations depending on the thickness of the material to be cut. We show below the minimum hole diameter values according on the thickness to guarantee a clean cut and finish.

thickness (t)	Minimum diameter (d)*
0.5mm	ø0.5mm
1.0mm	ø0.5mm
1.2mm	ø0.5mm
1.5mm	ø1.0mm
2.0mm	ø1.0mm
3.0mm	ø2.0mm
4.0mm	ø3.0mm
5.0mm	ø4.0mm
6.0mm	ø5.0mm
8.0mm	ø6.0mm

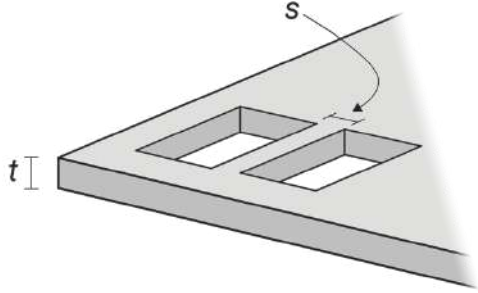
A 3D perspective diagram of a rectangular plate with a circular hole. The thickness of the plate is labeled as 't' with a vertical dimension line. The diameter of the hole is labeled as 'd' with a diagonal dimension line.

\*In aluminum, the minimum diameter is equal to the thickness value

## > Minimum measure between shapes

There is a minimum distance between closed shapes to be cut in the same part, also depending on the thickness..

thickness (t)	Minimum distance (s)**
0.5mm	∅1.0mm
1.0mm	∅1.0mm
1.2mm	∅1.0mm
1.5mm	∅1.0mm
2.0mm	∅1.0mm
3.0mm	∅1.0mm
4.0mm	∅2.0mm
5.0mm	∅2.0mm
6.0mm	∅2.0mm
8.0mm	∅2.0mm

A 3D perspective diagram of a laser-cut part. The part is a rectangular plate with a thickness labeled 't'. Two rectangular holes are cut into the top surface. The distance between the inner edges of these two holes is labeled 's'. A laser beam is shown cutting the part, with a shadow cast to the right.

\*\*In aluminum, the minimum distance is equal to half the thickness value.

It is possible to properly manufacture parts that do not comply with the Minimum Hole Sizes and/or Minimum measurement between shapes tables, however, the correct cutting result is not guaranteed by LaserBoost if the specifications of these tables are not met.

In addition to the non-correlation between the design and these tables, the quality of the cut may be affected by factors such as the existence of areas on the part with a high concentration of cut, among others.

You can find more information about these cases in our Terms and Conditions of Service on our website.

# *LASER CUT with FOLDING*

## 5 - Supported Formats for laser cutting with bending

For laser cut and bending parts we support the following file formats:



Our technical team will always review your order before manufacturing it.

If you have any questions about creating your document, contact us at

[info@laserboost.com](mailto:info@laserboost.com)

## 6 - Recommended software to create laser cutting and bending files.

All CAD software can save and export files in the formats that we support in our online configurator. Here is a list of our recommendations.

Software	LaserBoost Compatible Formats
Autodesk Fusion360™ (free)	.step
SolidWorks™ (free)	.step
Autodesk Inventor™ (free)	.step
Catia™	.step
PTC Creo™	.step

Autodesk Fusion360™ is the easiest way to start designing your first sheet metal parts, it's easy, intuitive and internet is full of tutorials to learn.

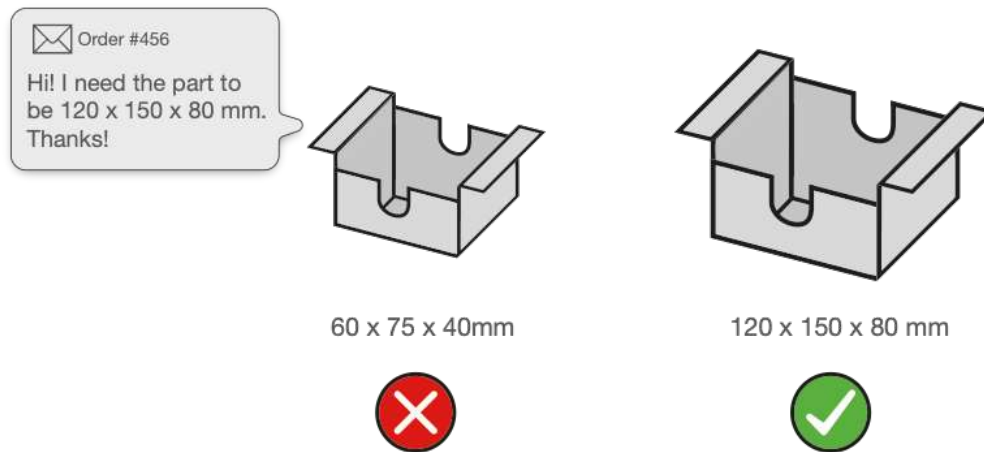
SolidWorks™ and Autodesk Inventor™ are the most widely used free version applications in the industry. The payment options shown here, Catia™ and PTC Creo™, have a very powerful and complete bending sheet metal drawing modules.

Remember that it is necessary to upload the parts free of dimensions, boxes, drawing templates and in real scale 1:1 in millimeters.

## 7 - Preparing your file for laser cutting

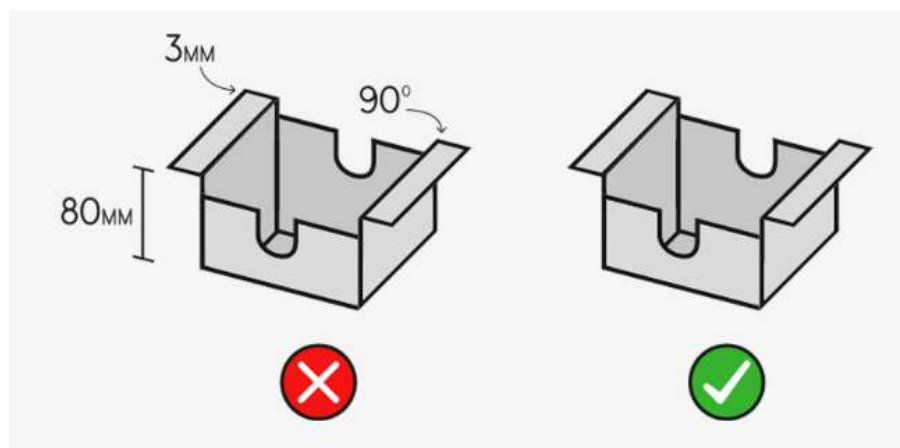
### > Scale

Your part must be the exact size you want it to be manufactured (1:1 scale), in millimeters. For parts with cutting and bend processes, the measurements cannot be edited in the configurator, for different measurements you will have to modify the file in your CAD software.



### > Content

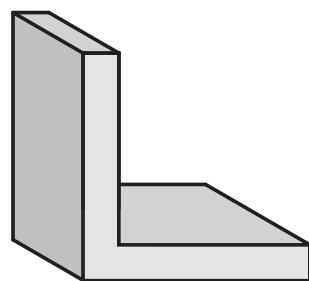
Your file must contain only the part to be manufactured. The indications, notes or dimensions will be omitted during on the file.



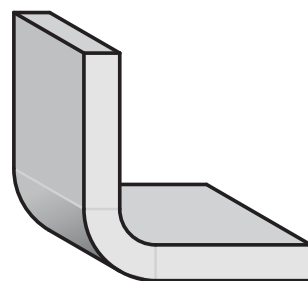
## > Bending

Our bending forming technology is what is commonly called “air bending”. Your designs must meet the following industry standard guidelines in order to be processed correctly.

All bends in your creation must have curvature, that is, they must have a bend radius. We do not support files with folds without a radius.



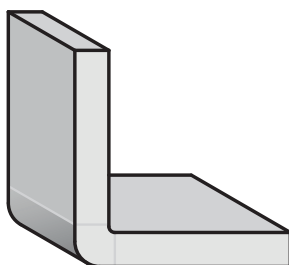
NO RADIUS



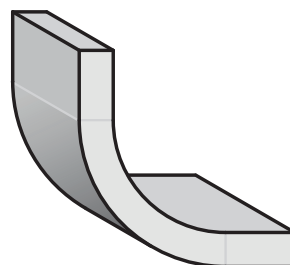
RADIUS



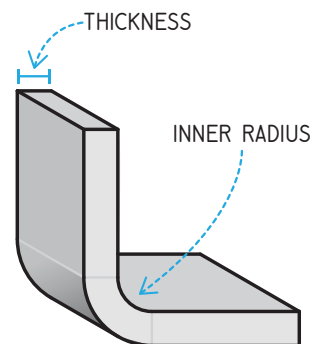
The inner radius of the folds of your creation must have equal value to the thickness of the sheet metal.



SMALL RADIUS



BIG RADIUS



RIGHT RADIUS  
INNER RADIUS VALUE = SHEET THICKNESS VALUE



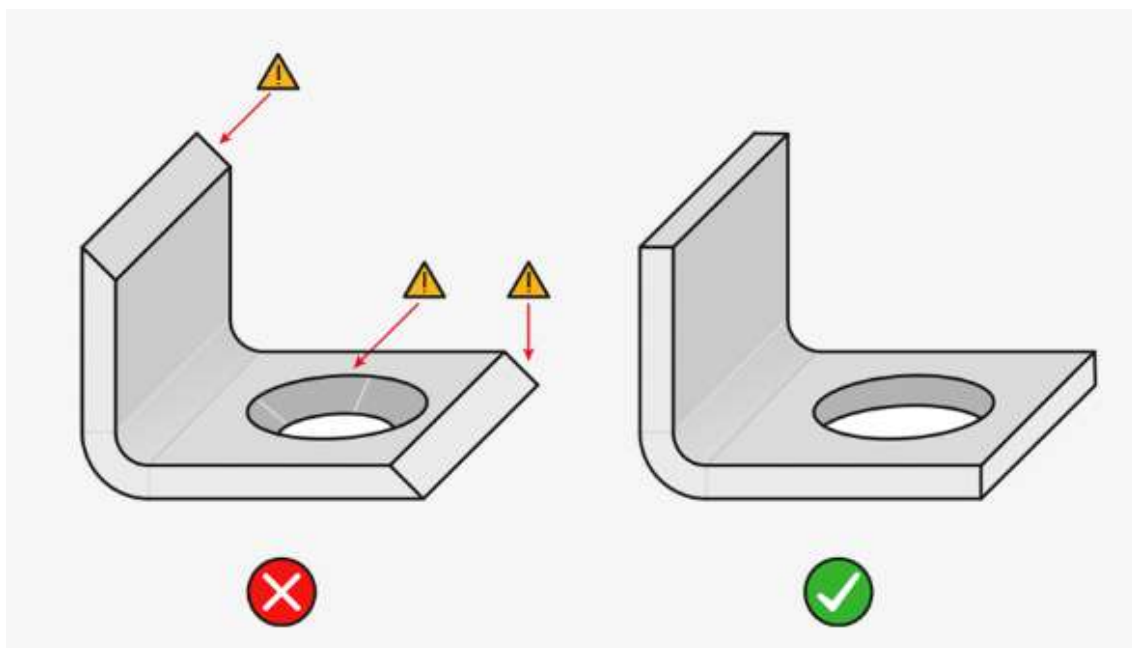


## > Not supported geometries

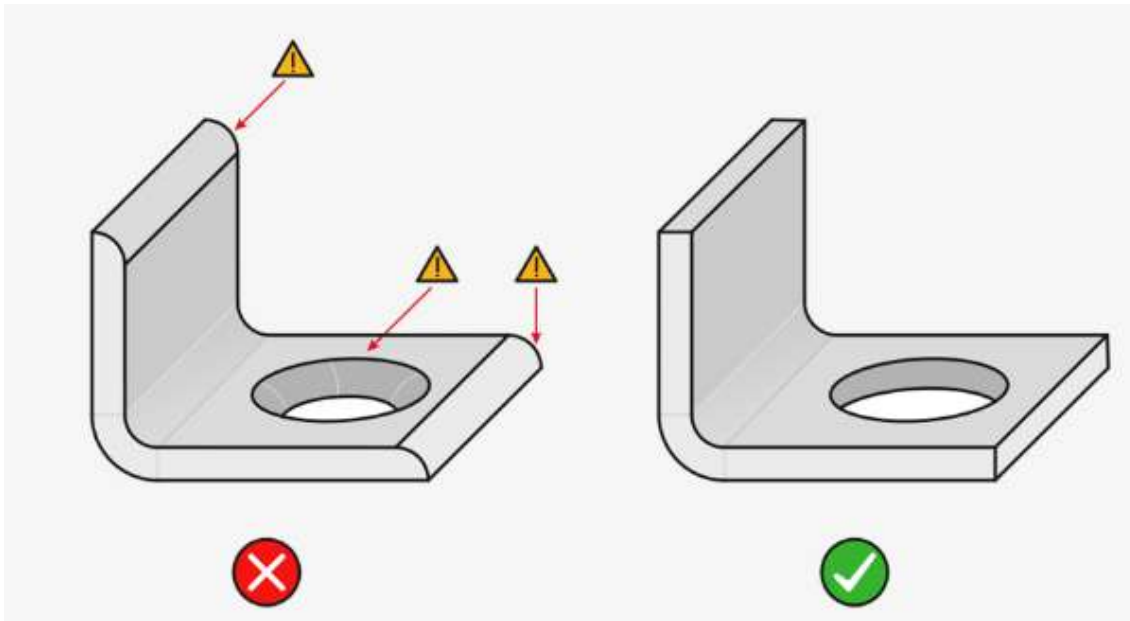
At LaserBoost we have our own manufacturing facilities that allow us to have absolute control over the production, capacity, quality and finishes of the parts. Our online configurator detects if all the required manufacturing processes to create your part are available in our facilities.

We work every day to offer more and more industrial processes online. At this time, productions with the following operations cannot be manufactured:

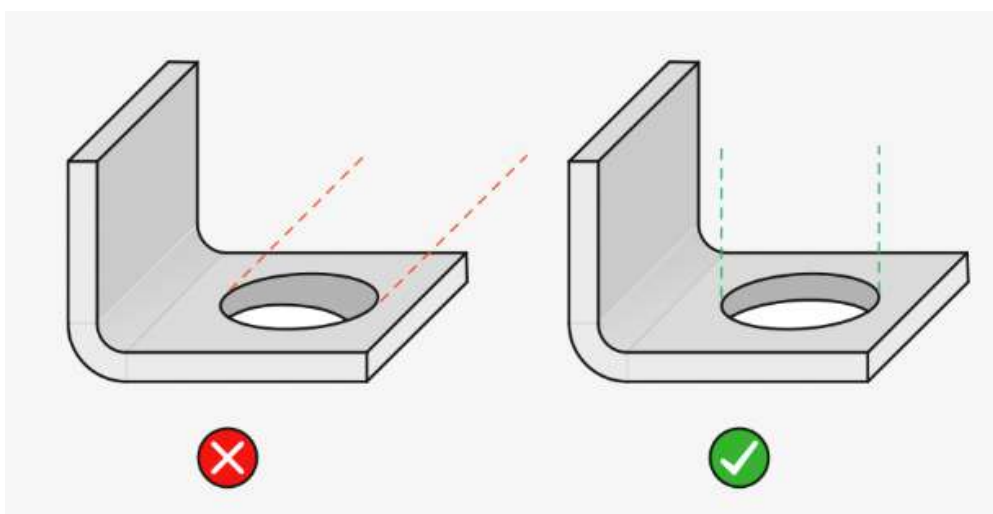
**I - Chamfers and countersinks.** It includes shapes that are not perpendicular to the sheet, even it is present on the edges, holes or perforations.



**II - Rounding.** It includes rounded shapes that affect on the metal thickness, even it is present on the edges, holes or perforations.



**IV - Perforations not perpendicular to the sheet.** Our laser process always cuts perpendicularly against the surface of the sheet, it is not possible to reproduce angle cut shapes.



## 8 - Laser cutting process

Our accuracy and maximum measurements:



The measurements of our sheet formats coincide with the maximum measurements that we can make per part in unfolded mode. If you need more space for your creations, contact us.

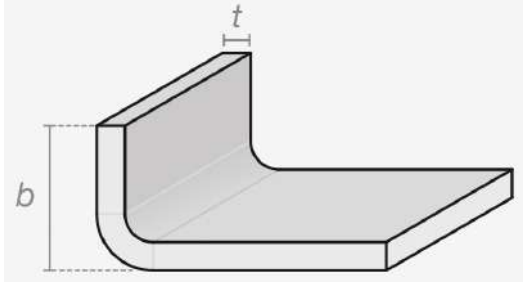
At LaserBoost we are open to special requests. If you need a material that is not in our web stock, please contact us, we will look for that material in our authorized suppliers.

### > Minimum folding height measurement

In order to be able to fold the parts correctly and safely, we need the fold heights to meet a minimum value depending on the selected thickness.

Compliance with this measure is imperative for security reasons of our human team.

thickness (t)	Minimum distance (b)
0.5mm	5mm
1.0mm	5mm
1.2mm	6mm
1.5mm	8mm
2.0mm	9mm
3.0mm	12mm
4.0mm	18mm
5.0mm	23mm
6.0mm	29mm
8.0mm	36mm

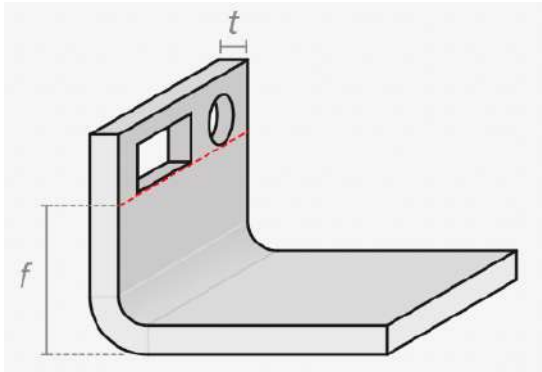


The diagram shows a 3D perspective view of an L-shaped part. The thickness of the material is labeled as 't'. The minimum distance from the inner corner to the start of the horizontal leg is labeled as 'b'. The part is shaded to show its three-dimensional form.

> **Minimum distance between bending and shapes.**

During the folding process, forces appear that expand and compress the material in the areas close to the fold. Any cut shape that is closer to the fold than the measurements listed below may be subject to warping.

thickness (t)	Minimum distance (f)
0.5mm	5mm
1.0mm	5mm
1.2mm	6mm
1.5mm	8mm
2.0mm	9mm
3.0mm	12mm
4.0mm	18mm
5.0mm	23mm
6.0mm	29mm
8.0mm	36mm



The diagram shows a 3D perspective view of an L-shaped part with a cutout in the vertical leg. The thickness of the material is labeled as 't'. The minimum distance from the inner corner to the start of the horizontal leg is labeled as 'f'. The cutout is shown as a rectangular hole with a circular symbol inside it. The part is shaded to show its three-dimensional form.

It is possible to properly manufacture parts that do not comply with the tables of Minimum Bend Height Measurement and/or the minimum distance between bends and forms, even so, the correct result of the bend is not guaranteed by LaserBoost, if your design does not comply with the specifications of the mentioned tables.

If the correlation between the design and these tables is not meet, in addition to the folding quality itself, other factors such as the resistance, hardness and other characteristics of the material may be affected. You can find more information about these cases in our Terms and Conditions of Service.



[www.laserboost.com](http://www.laserboost.com)

- Shipping in 72h
- Online configurator
- Instant price
- No minimum amount
- Multiple materials and finishes

This document belongs to LaserBoost™ SL with fiscal address in Calle Embajadores S/N, Madrid, Spain. The purpose of this document is informative, serving as an orientation guide for the creating documents for the online parts configurator of LaserBoost™. LaserBoost is not responsible for typos or comprehension errors that fall on shots of decisions in the design of parts. For more information contact the LaserBoost team at [info@laserboost.com](mailto:info@laserboost.com).

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