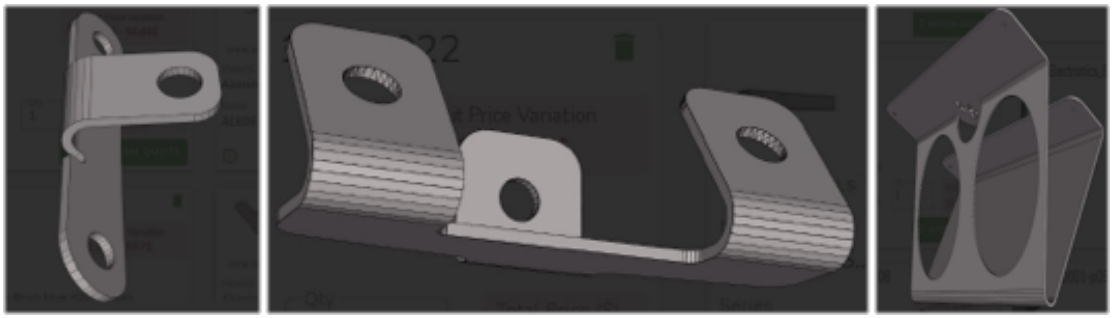
RESOURCES

Drawing Guidelines

Drawing Guidelines to Ensure Seamless Manufacturing

We've prepared a short guide to the various drawing formats supported to get you started quoting and producing parts in no time.



What kind of drawing do I need to quote?

The type of drawing depends on the type of process or part you are purchasing. Generally, we support 3D and 2D DXF drawings for most parts. For customers purchasing hardware or custom fastener kits, no drawings are needed.

PROCESS	ACCEPTED DRAWINGS		
	3D	2D	VECTOR
Laser Cutting	X	X	
CNC Sheet Metal Bending	X	X	
CNC Turning	X		
Hardware or Fasteners			
Laser Engraving			X

What kind of drawings do you accept?

Individual Parts

All drawings need to be of a single, solid component. We don't currently support quotation of multiple components. In case your drawing has multiple components, please save each part as their own drawing before uploading.

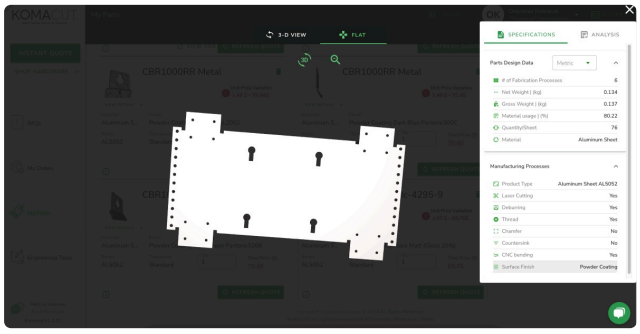
Supported Manufacturing Process

Currently offers laser cutting, bending, CNC turning and laser engraving for custom part manufacturing. Drawings which require stamping, punching, milling or other processes will be rejected.

3D Drawings

- **What they are:** a 3D model of the part that needs to be quoted and manufactured.
- **What they're needed for:** We need 3D files to accurately nest, define bend angles and do all sorts of calculations for optimal part pricing and DFM analysis, and to manufacture certain types of parts.
  - CNC sheet metal bending
  - Chamfers
  - Milled features
- **Requirements**
  - Sheet metal drawing design must be made using 3D sheet metal modules.
  - 3D drawings must be of individual components, not assemblies
  - 3D drawings must be in supported formats
- **Supported Formats:** We support a variety of standard 3D software formats, including:
  - STP – File Extension: .stp
  - STEP – File extension: .step
  - Solidworks – File extension: .sldprt

2D Drawing Formats



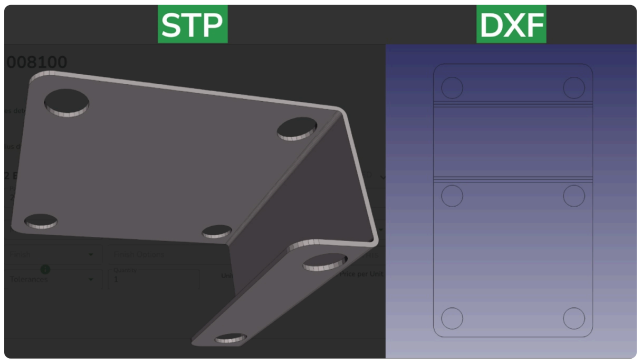
- **DXF Files**
  - **What they are:** an editable, 2D representation of the part to be manufactured.
  - **What they're needed for:** as a substitute for 3D drawings in cases where customers do not have, or to accompany 3D drawings of CNC machined parts.
    - Laser cut or CNC bending parts quoted without 3D
  - **Requirements**
    - Must be a supported format (DXF)
    - Must be supported software version (see below)
    - DXFs should contain only flat pattern views. Any extra geometry, e.g. borders, another view, text converted to geometry extra will not work.
    - Parts without bends (i.e. laser cut parts) can be exported without layer mapping, on any layer, except layer '3'.
  - **Supported Formats:**

- DXF – file extension: .dxf

VERSION	AUTOCAD RELEASE
AC1009	AutoCAD R12 AutoCAD
AC1012	R14 or RR2000 AutoCAD
AC1014	R14 or RR2000 AutoCAD
AC1015	R2000
AC1018	AutoCAD R2004
AC1021	AutoCAD R2007
AC1024	AutoCAD R2010
AC1027	AutoCAD R2013

Guidelines for Sheet Metal Bending DXFs

Part with bends should be exported using the given DXF layer map.



LAYER	DESCRIPTION
X Layer - 0F	• Solid geometry • Everything except defined in the following layers
X Layer 1F	• Bend Down bend lines only • No other entities
X Layer 2F	• Bend up bend lines only • No other entities
X Layer 3F	Bounding Box layer
X Layer 4F	Sketches

Different CAD software can have more or fewer options available for layer mapping. The option given above is available to most applications.

Layer mapping configuration files for Inventor and Solidworks are provided.

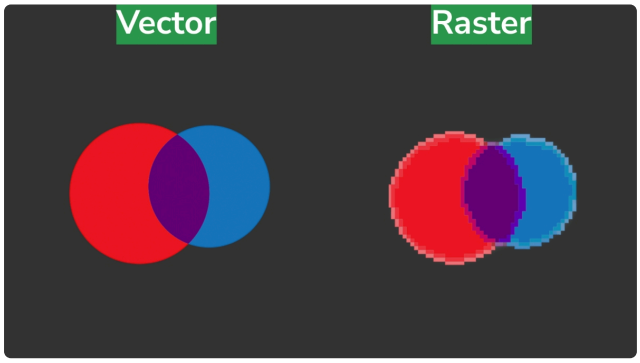
The following features/information cannot be currently recognized by our platform, so a 2D drawing would also be required for parts with:

- Countersinks
- Counterbores
- Threaded holes
- Bend angles (bends can be recognized but not bend angles)
- Blind holes
- Laser engraving
- Any machined/milled feature including but not limited to:
  - Edge fillets

- Edge Chamfers
- Features requiring milling operations

Vector Files

- **What they are:** SVG vector images are composed of mathematical formulas that define the shapes in the image. This makes them scalable, so that they can be enlarged or reduced without losing quality.
- **What they're needed for:**
  - These are used for logos, icons, so any parts which have laser engraving to them
- **Requirements**
  - Must be a supported format
- **Supported Formats:**
  - SVG – file extension: .svg



Ready to get a quote? Upload your design files now!

CAPABILITIES

Laser Cutting
CNC Sheet Metal Bending
Threading & Chamfering
Surface Finishing
Hardware
Laser Engraving
CNC Turning