PLEASE READ BEFORE SUBMITTING REQUEST FORM

To accurately determine the forming feasibility and required panel count for your part, we require a zero-thickness surface model provided in .STEP or .IGES format, with .STP being preferred.
A zero-thickness surface model is required to properly evaluate the part and determine how it can be formed.
Please note that submitting only a photograph does not provide enough information to determine forming feasibility or panel count.

- If you are unable to 3D scan the part or create a zero-thickness surface model, there are third-party service providers available that can scan the part and create the required surface model file for you.
- You may also be able to purchase an existing scan or surface model from websites such as 3DModels.org or CGTrader.com.
- We offer 3D scanning and surface model creation services as well. You can either:
- Send us a scan of the part for us to create the surface model, or
  Ship the physical part or a properly dimensioned template to us so we can scan it and create the required file.
- Our rate for this service is $145 per hour, paid in advance.
- If you require a mirrored/reversed version of a part, we can create that as well.
- Depending on the size and geometry of the part, it may need to be divided into multiple pieces or panels for forming and then welded together. Welding is not currently offered as an additional service.
- The maximum formed panel size is 1450 mm × 1050 mm (57.1 × 39.4 in), including the skirt around the part, depending on the geometry. Our recommended maximum panel size is 50.0 × 35.0 in. Please review our Parts Guidelines page on our website for our current forming capabilities and limitations.
- If you require a buck, we can create the files necessary to have the buck pieces cut. A zero-thickness surface model in .STEP format is required for this process. Once the buck file has been created from the surface model, we will provide the file to you so the material can be cut by your preferred supplier.
- Our current estimated lead time is 4–6 weeks, beginning once the estimate/job has been approved.

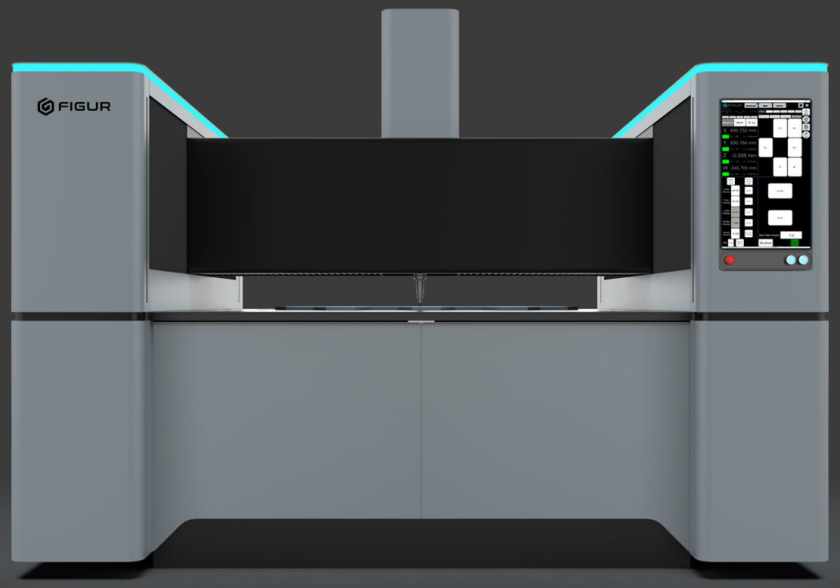
FIGUR – G15

Part Guidelines

FIGUR | Desktop Metal

FIGUR G15

Figur G15 Specs	
Technology	Digital Sheet Forming (DSF)
Max Sheet Size	1,600 mm x 1,200 mm (63.0 x 47.2 in)
Forming Area	1,450 mm x 1,050 mm (57.1 x 39.4 in)
Z Travel	400 mm (15.7 in)
Forming Force	2,000 lbs X, Y, & Z
Forming Speed	1 m/sec
Capacity	Aluminum: 3.2 mm Steel: 2 mm
Power	480 V / 3 Phase / 20 kw
Machine Dimensions	2.8 m x 2.2 m x 1.8 m (110.2 x 86.6 x 70.9 in)
Machine Weight	3,600 kg (8,000 lbs)

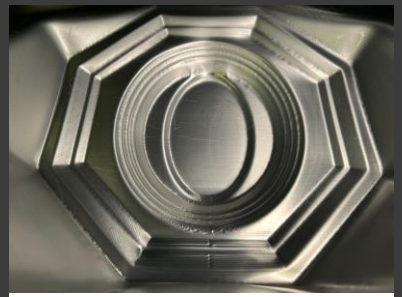


FIGUR | Desktop Metal

Figur Formed Parts – Sample Times

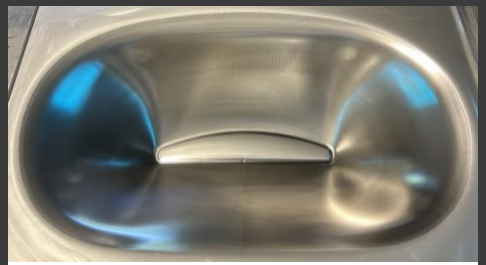
Sine Bowl
6061 – O Aluminum
18” x 18” x 0.063”
36 minutes

Automotive Interior
6061 – O Aluminum
36” x 48” x 0.063”
46 minutes



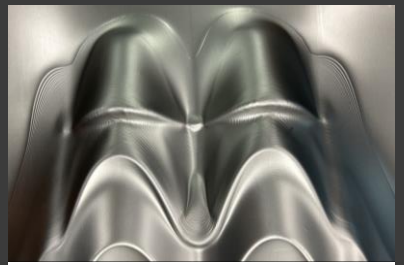
Logo Panel
6061 – O Aluminum
36” x 36” x 0.063”
60 minutes

Automotive Fender Section
6061 – O Aluminum
36” x 48” x 0.063”
60 minutes



Aerospace Panel
Stainless Steel - 301
36” x 48” x 0.063”
65 minutes

Deep Aluminum Part
6061 – O Aluminum
36” x 48” x 0.125”
50 minutes



Roof Shingle
Cold Rolled Steel
24” x 24” x 0.032”
60 minutes

Lighting Fixture
Aluminum 5052
18” Diameter x ??
??

FIGUR | Desktop Metal

Sheet Forming - Materials

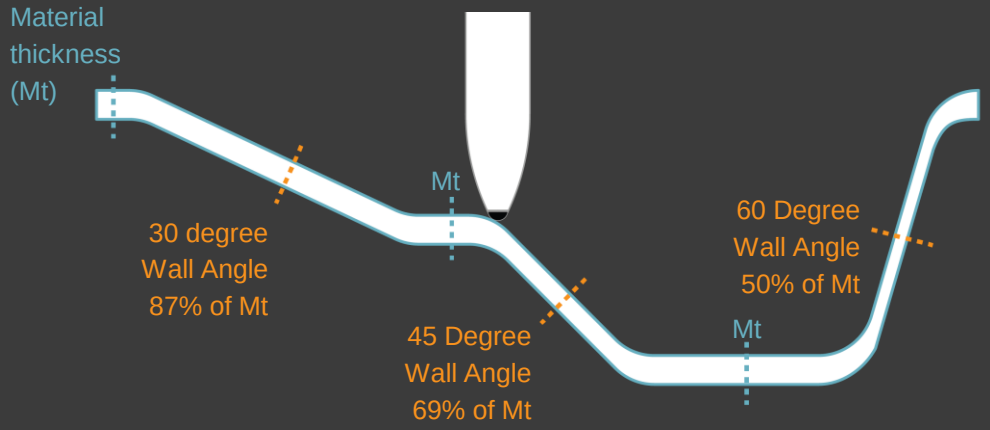
Currently Supported Materials	
Cold Rolled Steel	Up to 2 mm
Aluminum – 6061 O	Up to 3.175 mm
Materials in Development	
Stainless Steel - 301	Up to 2 mm
Stainless Steel - 304	Up to 2 mm
Copper	Up to .55 mm
Aluminum – 1100 O	Up to 1.6 mm
Aluminum – 2024 O	Up to 3.175 mm
Aluminum – 5052 O	Up to 2.1 mm
Future Materials	
Inconel	
Gold	
Titanium	

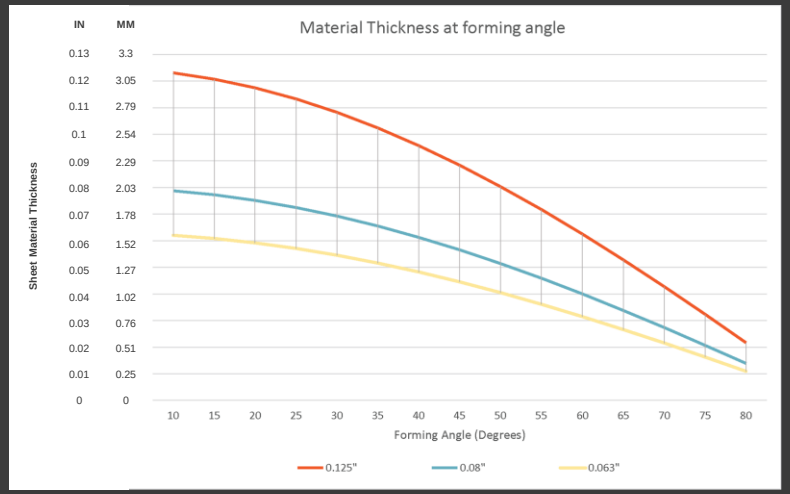
****Note* All Aluminum must be formed in O or Annealed condition. No hardened material******

FIGUR | Desktop Metal

Material Thinning

Part Section





The figur progress incrementally thins the material during forming. The material thins based on the wall angle.

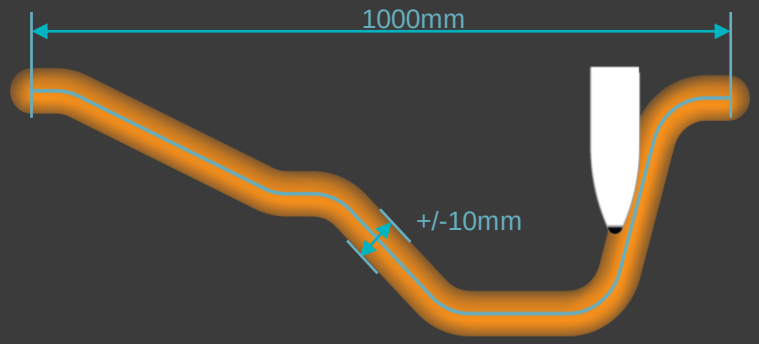
The outcome part will have variable wall thickness based on the geometry. We accomodate this by check the redicted thinness in the Figur software, and selecting an input material based on the minimum requried thickness.

FIGUR | Desktop Metal

Forming Tolerances

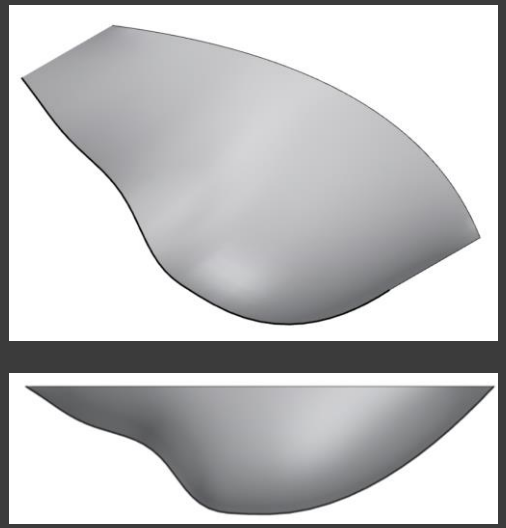
Part tolerances depend on several factors – part complexity, material, part orientation and tooling all affect part accuracy. Below are some general guidelines regarding part accuracy.

- General part accuracies are around **0.5% -2%** of the largest dimension of the part.
- Parts that are being cut out from the support skirt may warp / distort due to residual stresses built up in the material. Note sometimes simple shapes with very gentle curvature can warp more severely than complex parts. Heat treating (stress relieving) post forming can reduce or eliminate this effect
- Part detail – Figur tools have ball shaped tips, which can limit inner corner forming. In general, the radius of the surface being formed should be 2-3X the radius of the tool
- Measuring – large parts can be flexible making them difficult to measure as simply lifting or orientating them differently on a scan table will cause large variations in the part. The most accurate way scan a trimmed part is within a jig or fixture.



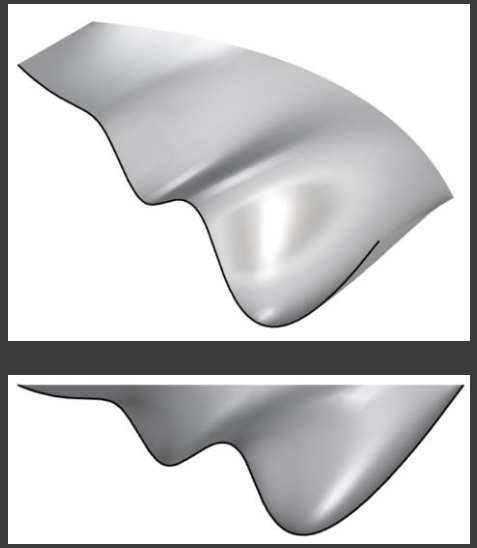
Tolerance Example:
A 1000mm long part may have a deviation of around 1% which translates to a tolerance band of +-10mm.

General Part Qualification



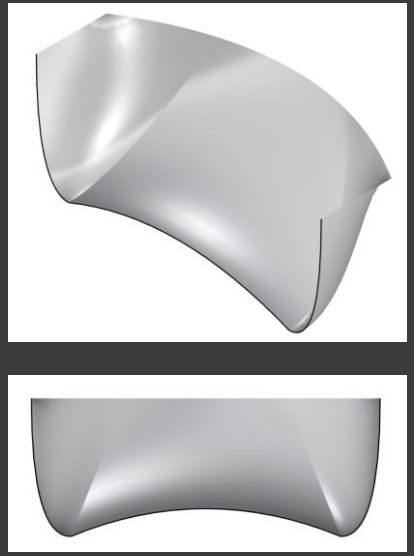
Easy:

- Smooth
- 60 degree draft
- No peaks and valleys
- No large flat areas.



Medium

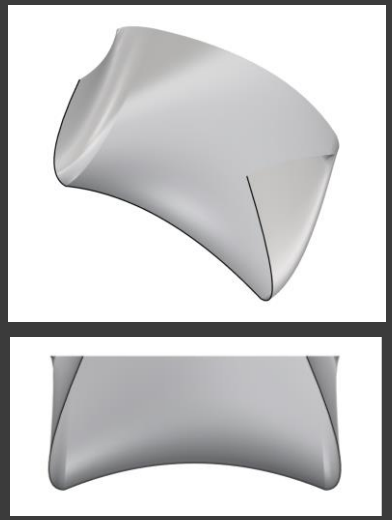
- Smooth
- Peaks and valleys
- 60-75 degree walls



Difficult

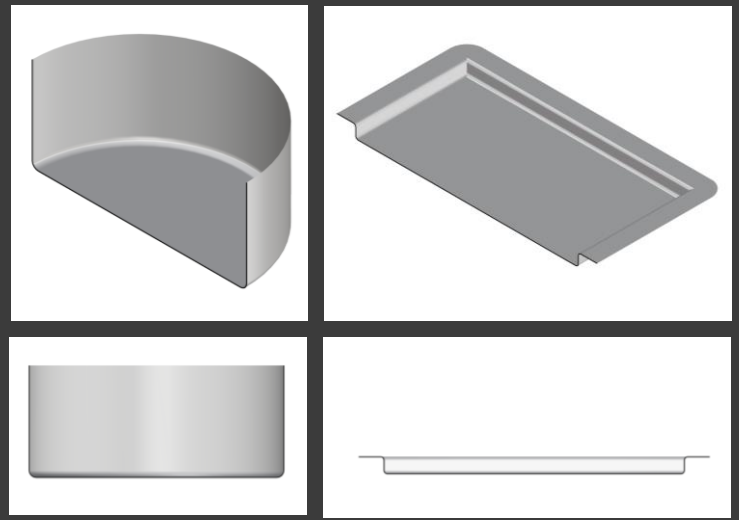
- Steeper wall angles 75 – 90 degrees
- Convex geometry within the part
- Large flat areas

Incompatible parts for Digital Sheet Forming



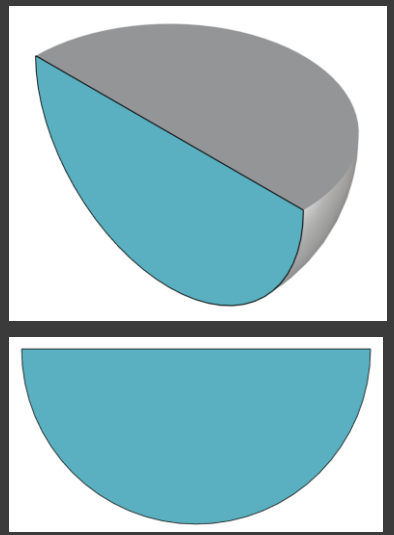
Parts with Overhung Areas

Any overhung part will not be able to be formed as one part. The part will need to be split and formed as separate pieces.



Steep + Flat Parts

“pots and pans” type shapes are not ideal parts. They have 90 degree walls that would need custom toolpathing not currently available in the figur former software.



Solid objects

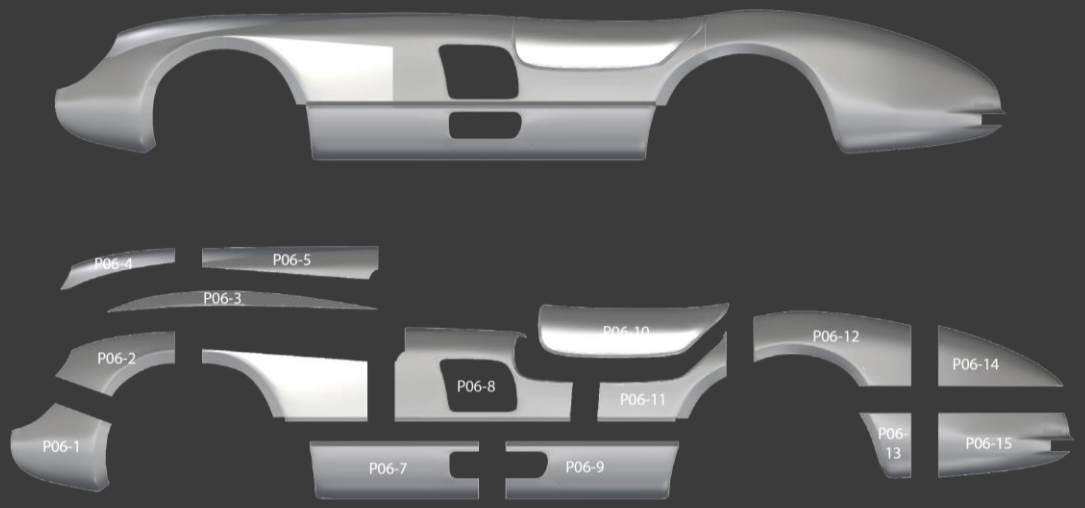
our process is “sheet forming” which means solid objects are not possible

Oversized Parts + Splitting

Part Split examples:

- Parts that exceed the max formable area of 1450 x 1050 must be split into separate parts.
- Parts may also be split if the original part is impossible to form as one.
- If a part has 2 parallel walls greater than 60 degrees - part is split between those two walls.
- If one side of the part has smaller features that need to be oriented a different way from the rest of the part.

Car Body Side



Required Intake Information

- ***Name*** of the company
- ***3D Model file*** – STEP, IGES, RHINO (high quality)
- ***Part Overall Dimensions***
- ***Material Type***
- Minimum ***Material Thickness***
- Desired ***number of parts*** to be formed.
- Intended ***Application / Industry*** of part