
Subject: Stainless Steel - 3mm?

Posted by [PeregrineStudios](#) on Mon, 22 Oct 2012 02:45:43 GMT

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Hey there,

The Stainless Steel material lists 3mm as being the minimum wall thickness. However, certain models, such as this one:

<http://www.shapeways.com/model/182665/deathly-hallows-harry-potter-pendant-no-spin.html>

Were printed in stainless steel, and are not 3mm thick (the dimensions listed are 2.5mm) (this particular model has no relevance, it's just one I picked at random).

So is the 3mm wall rule not a hard rule? Can it be overcome or ignored? Enlighten me, please.

EDIT: This one is an even better example. The dimensions listed for the model are 7mm in height, but that's with the loop - I very much doubt the model itself is 3mm or more in height, and the separate walls are surely not that thickness either.

<http://www.shapeways.com/model/176501/star-pendant-super-star.html>

Subject: Re: Stainless Steel - 3mm?

Posted by [virtox](#) on Mon, 22 Oct 2012 08:49:40 GMT

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There are a few sections on the design guidelines on this subject:

<http://www.shapeways.com/materials/steel-design-guidelines>

Quote:

Walls under 3mm might be printable depending on your design's structure

In general, if your model is well supported (thicker walls weave in with thinner walls), or your thin walls are small relative to your structure (small rings and cufflinks), then you could print down to 1.5mm thin walls. To learn more about this, take a look at the next few design tips.

Weave in thicker walls to support thinner walls Weave in thicker walls to support thinner walls

In certain structures, thin walls of 1.5-3mm are printable as long as there isn't a long stretch of thin wall. If there is a long stretch of thin wall (i.e., a big, thin, flat area), then it will break. In this ring, the thin walls can be around 1.5mm thin given the high density of thick walls (extruding checkboards) around it.

Smaller models are printable at 2mm wall Smaller models are printable at 2mm wall
A simple ring (like a wedding ring model) can be 2mm thin since the wall extend over a relatively small area. Rings less than 2mm would likely break. A larger bracelet will be less stable at 2mm. Thinner walls for smaller models may be possible.

Add more layers to support thin walls Add more layers to support thin walls
Thin layers are printable if they are supported by additional layers of material. This ring is printable because of the double layers of mesh structure (though mesh structure is under 3mm).

Cheers!

Subject: Re: Stainless Steel - 3mm?
Posted by [PeregrineStudios](#) on Tue, 23 Oct 2012 01:19:34 GMT
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Thank you for the reply, that partially answers my question. There is a second half of that question that I didn't consider until now, which is: how did this model:

<http://www.shapeways.com/model/182665/deathly-hallows-harry-potter-pendant-no-spin.html>

Even get stainless steel as an option to print? Whenever I upload a model with a depth of less 3mm, stainless steel is greyed out and cannot be selected as a print option, but this model seems to have that option. Can I e-mail and ask them to enable it for stainless steel? Or is there some trick or something I'm missing?

Thanks again for the reply, and for further replies as well!

Subject: Re: Stainless Steel - 3mm?
Posted by [Youknowwho4eva](#) on Tue, 23 Oct 2012 14:24:56 GMT
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It used to depend on the orientation of the model in the file. Now SW automatically calculates the smallest bounding box, which should negate this work around.

Subject: Re: Stainless Steel - 3mm?

Posted by [PeregrineStudios](#) on Tue, 23 Oct 2012 16:19:35 GMT
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So other sellers are able to continue selling stainless steel products with dimensions smaller than the minimum allowable, but newer sellers cannot?

For that matter, why is 3mm the minimum bounding box when clearly the printers can handle smaller models?

Subject: Re: Stainless Steel - 3mm?
Posted by [Youknowwho4eva](#) on Tue, 23 Oct 2012 18:00:25 GMT
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I believe, if that model were ordered today, it would be rejected and then stainless would be removed as an option for it automatically. I just tried uploading an item of similar dimensions, and it automatically changed my units to inches. The reason for the minimum size is, a flat object would be very fragile in the green stage for stainless. And could be hard to find in any of the stages of production. 3x3x3 was implemented to reduce breakages, and labor as both of these increase prices (so to keep our prices low).

Subject: Re: Stainless Steel - 3mm?
Posted by [PeregrineStudios](#) on Tue, 23 Oct 2012 21:41:10 GMT
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Hm, I see. All right then.

Is there a possibility in the future of printing smaller items? 3mm is actually quite a large size for some of the things possibly made here. More than anything, I find it cost prohibitive. Many models, to be scaled up to 3mm, increase too exponentially in volume for me to justify spending so much on them.

Subject: Re: Stainless Steel - 3mm?
Posted by [stop4stuff](#) on Mon, 29 Oct 2012 13:30:37 GMT
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Consider these two models.

<http://shpws.me/IPSh> - cm: 1.5 w x 3 d x 0.3 h

<http://shpws.me/IPSj> - cm: 1.5 w x 3 d x 0.2 h

Both should be printable in Stainless, but only the first one will be accepted by the automated checks, whether or not they pass manual inspection at order time is a different matter although 0.9mm wall thickness have been printed as can be seen with the ring on my swirl pendant in the guidelines.

The point of this post is to shed some light on how to make Shapeways automated checks work for you instead of frustrate you.

The minimum bounding box (as mentioned by Mike is 3mm on all sides) this does not mean to say that all thicknesses have to be 3mm. To qualify as printable by the automated checks, only part of the model needs to be 3mm - this could be a raised feature or even a perpendicular loop on a flat item.

Perhaps the minimum bounding box could be set up in a similar fashion to FCS where the bounding box dimensions need to add up to a minimum.

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