
Subject: Need help hollowing out a design
Posted by [dcltdw](#) on Fri, 19 Oct 2012 18:32:50 GMT
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I'm trying to hollow out this solid model
<http://www.shapeways.com/model/732444/37c490266b848c0a94a89489cfd0a25b> to bring down the cost.

I'm trying to use 1.5mm walls, and I generated the attached STL. However, when I upload that to Shapeways, it just becomes a solid disk. In netfabb, if I run the Automatic Repair, it similarly just fills in everything.

Are there primers out there on the web that people can point me at? Specifically, I'm trying to figure out why netfabb is squawking about my design. I'm not at all surprised I made a mistake, but all I get is a giant caution symbol and no details. I'm hoping there's a way I can get netfabb to tell me, "yo, this part here, this is bogus".

File Attachments

1) [qc6.stl](#), downloaded 40 times

Subject: Re: Need help hollowing out a design
Posted by [Youknowwho4eva](#) on Fri, 19 Oct 2012 18:41:59 GMT
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The problem is you need an escape hole. Any internal geometry not attached to the outside geometry will automatically be deleted. Also check the intended material page for any required escape hole size for build material removal.

Subject: Re: Need help hollowing out a design
Posted by [dcltdw](#) on Fri, 19 Oct 2012 18:44:07 GMT
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My bad, I should've mentioned that. There's a 2mm x 2mm escape hole on one of the cross-arms.

I've included a DAE in case the hole got mangled in all the file conversions.

File Attachments

1) [qc6.dae](#), downloaded 55 times

Subject: Re: Need help hollowing out a design
Posted by [Youknowwho4eva](#) on Fri, 19 Oct 2012 18:53:19 GMT
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Ah, I did not notice that. Your next problem is internal faces. Along the ring you have faces that connect the hollow inside to the outside. The software will try to make sense of this and is most likely what is causing your issues. I highlighted a few of the faces in this image. (I deleted the top surface)

File Attachments

1) [internal faces.png](#), downloaded 217 times

Subject: Re: Need help hollowing out a design
Posted by [dcltdw](#) on Fri, 19 Oct 2012 19:04:56 GMT
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Okay, this is where I maybe expose how little I know about 3D modelling. For instance, I'm not having an a-Ha! moment with the screenshot you sent. ./

My understanding is, in Sketchup, surfaces either have a white or blue surface. All of the "exposed to air" surfaces need to be white.

1. Is that right?
 2. Any other details I'm missing?
 3. Does this mean that I have faces in my model that are improperly colored? Is there a way to get Sketchup / MeshLab / netfabb to highlight this?
-

Subject: Re: Need help hollowing out a design
Posted by [Youknowwho4eva](#) on Fri, 19 Oct 2012 19:17:52 GMT
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I used Blender to show you what I found, but I don't know blender well enough to easily fix it. I know even less about using Sketchup. Basically, you have extra faces in your shell. The software see's these faces, and uses the direction they're facing to try and figure out why they are there. Hopefully someone else will be able to help you more with how to fix it.

Subject: Re: Need help hollowing out a design
Posted by [stonysmith](#) on Fri, 19 Oct 2012 20:26:37 GMT
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dcltdw wrote on Fri, 19 October 2012 18:32 all I get is a giant caution symbol and no details.

Click on the red + sign at the top right of the menu bar. It'll show you (highlighted in yellow) where the problem spots are.

This one is going to be a bit tricky to fix.. you've got several holes where you expect faces, and some faces where they should not be. Further, in the STL.. I don't see the escape hole that you're talking about.

What you might attempt is uploading your model to the Cloud version of Netfabb and see if it will fix the shape.

Subject: Re: Need help hollowing out a design
Posted by [JACANT](#) on Fri, 19 Oct 2012 22:28:26 GMT
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Repaired in Netfabb

As can be seen in the image the inside walls are touching the outside walls. The bottom image is correct. The walls should not touch each other except were they join at the hole 'inside to outside'

File Attachments

- 1) [qc6a \(repaired\).stl](#), downloaded 33 times
 - 2) [image qc6.png](#), downloaded 161 times
-

Subject: Re: Need help hollowing out a design
Posted by [dcltdw](#) on Sat, 20 Oct 2012 02:05:30 GMT
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Aha, that's really illuminating! Thanks so much for explaining

Subject: Re: Need help hollowing out a design
Posted by [Fredd](#) on Sat, 20 Oct 2012 02:50:11 GMT
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Good job continuing your work on the Cross pendant. I thought the dae looked familiar, minus the chick. Sketchup is a pain, but when you have the technique down its not so bad, especially for models destined for 3D printing.

I was curious as the technique you used to hollow it out, if you would explain. I downloaded SU a week ago, and am intrigued

Attention to Blender users If you export your file as a dae, and you set unit measurements in scene as a cm, mm, or inch to replace a bu, for a upload to Shapeways, it will be printed in those measurements. Less being driven crazy by scaling factors. Happy times

Subject: Re: Need help hollowing out a design
Posted by [dcltdw](#) on Sat, 20 Oct 2012 02:57:17 GMT
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Draw out the concentric circles and cross-lines.

Push up the innermost rings and the outer wall most of the way. Push up the "floor" (i.e., the stuff in-between) up 1.5mm.

Flip model over.

Fill in the exposed open areas.

Flip model back over.

Create the escape tunnel.

Then -- and this is where I probably did it wrong -- draw lines on the top to create a base, and then push that up 1.5mm. This is where I probably had problems as described above.

Smooth all lines.

I just fixed my original model by judicious use of Hide face and then erasing the right faces. I'm not exactly sure how to otherwise get the minimum width on the top face without re-doing what I did, but I'm a sketchup newbie, so I'm probably missing some trick.

Subject: Re: Need help hollowing out a design
Posted by [Fredd](#) on Sat, 20 Oct 2012 03:22:41 GMT
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Sheesh, creating any model is difficult enough. Creating one for 3D printing takes a evil mindset. Now you just need something for the chain to be connected to you pendant.*Cackles madly*

Subject: Re: Need help hollowing out a design
Posted by [JACANT](#) on Sun, 21 Oct 2012 16:18:06 GMT
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dcltdw wrote on Sat, 20 October 2012 02:57 Draw out the concentric circles and cross-lines. Push up the innermost rings and the outer wall most of the way. Push up the "floor" (i.e., the stuff in-between) up 1.5m

Copy and paste your first sketch,. Before you 'pushup' the faces, delete all of the extra lines that you do not need. Delete the faces you don't want, Then 'pushup' the remaining shape by the thickness you want. It will be one shape, Make component. Go to the copy you pasted. Offset the edges by the amount of wall thickness you want. Repeat above, deleting extra lines and faces. Pushup by the amount you want minus two wall thickness. Make component. Move the smaller component onto the larger. Pick face view, move smaller component vertically down by the wall thickness measurement. Draw escape hole in one of the sides pushup to meet inner wall.

File Attachments

1) [SU model.png](#), downloaded 112 times

Subject: Re: Need help hollowing out a design
Posted by [stonysmith](#) on Mon, 22 Oct 2012 01:37:14 GMT
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I just noticed that you had another thread going at the same time.... (I'm slow on the uptake sometimes)

Two quick notes:

- The model "QC6A" above has walls only 1.5mm thick.. the minimum for glass is 3mm.
 - You are aware that Glass is not transparent, but opaque white, correct?
-

Subject: Re: Need help hollowing out a design
Posted by [dcltdw](#) on Mon, 22 Oct 2012 01:56:55 GMT
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Oh right, I knew that about min walls. But my first few models had walls that were 3mm. Maybe I should bump them to 3.5 to get them over the threshold and try again.

Yeah, I saw the photos about them being opaque.
