
Subject: Is shapeway charging for empty space?
Posted by [Steps2light](#) on Fri, 07 Dec 2012 20:36:58 GMT
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I am designing a tube and according to Shapeways it is 30.4W x 11.6D x 11.6H = 333cm(cubed).

The thickness of the tube is 2mm.

So this tube is hollow which would give me a Volume of 14.5cm(cubed).

Shapeways estimate: \$8 x 333 = \$2664

My estimate: \$8 x 14.5 = \$116

For stainless steel at \$8 this is quite a difference.

Seems your equations are based on outside parameter only? Is this automated computer error or is this just how the 3D printing machine works?

Why is the price for a solid tube the same for a hollow tube???

Shouldn't you be charged by material used not for air space? I am using less material so doesn't the 3D printer finish quicker? OR does it not matter with the 3D printer because it takes the same amount of time to create a hollow or solid object?

Also I am being charged by the widest dimension which is 11.6D...my part only has the Diameter for 20% of the part...the rest of the part is at 6cm D. So the volume of the part is charged not by actual material but the outer most dimension?

or am I not creating the object correctly for the computer to pick up the hollow shape?

Just would like to know how the machine works so I can create with it. But at this juncture this makes my project undo-able otherwise I would be ordering 10 right now.

Thanks

Subject: Re: Is shapeway charging for empty space?
Posted by [Youknowwho4eva](#) on Fri, 07 Dec 2012 20:42:56 GMT
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You are only charged for material used in stainless. Same for all other materials except ceramic

where you are charged for surface area. If you could share the model so we can look to see if there is an issue with you model.

Subject: Re: Is shapeways charging for empty space?
Posted by [Steps2light](#) on Fri, 07 Dec 2012 20:58:52 GMT
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Here ye go.

I have just been learning on AutoCAD for 2 weeks now. So what would I be missing?

File Attachments

1) [wave pipel.stl](#), downloaded 39 times

Subject: Re: Is shapeways charging for empty space?
Posted by [Youknowwho4eva](#) on Fri, 07 Dec 2012 21:19:31 GMT
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Can you make the item public so we can see it? What scale (inches, mm) did you design your item in, and what should the dimensions of it be?

Subject: Re: Is shapeways charging for empty space?
Posted by [Steps2light](#) on Fri, 07 Dec 2012 23:06:40 GMT
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The dimensions previously given are the correct ones...I designed it in AutoCAD 2012. Using Solid and Extruding Commands.

How do you make the object public?

File Attachments

1) [wave pipel.stl](#), downloaded 35 times

Subject: Re: Is shapeways charging for empty space?

Posted by [psalmu](#) on Fri, 07 Dec 2012 23:58:38 GMT

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Is your tube really a tube with open ends or a closed shell? From some earlier questions I seem to remember that if a hollow model has no "escape hole", the system treats it as solid.

Subject: Re: Is shapeways charging for empty space?

Posted by [JACANT](#) on Sat, 08 Dec 2012 00:14:46 GMT

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The sizes Shapeways give are correct. The wall thickness is about 2.5mm.

Have you checked the volume in AutoCad? It's on the 'INQUIRY' tab. If you cannot find it type in MEASUREGEOM pick 'V', volume, pick 'O', object.

You can measure the wall thickness in <http://www.netfabb.com/basic.php> It will also check, repair and scale your models.

To make it public go to edit product on your model page and click the box to 'display to the public'. Update. Exit Edit Mode.

Subject: Re: Is shapeways charging for empty space?

Posted by [stonysmith](#) on Sat, 08 Dec 2012 01:15:03 GMT

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There's nothing wrong with your STL.. it's just BIG.

How did you arrive at your estimate?

If you were to use a "regular" tube (straight sides) that is the average diameter of your model, then you would have a tube of 9.0cm on it's outer diameter.

With a wall thickness of 2.5mm, that gives you an inner diameter of 8.5cm.

$V_{\text{tube}} = V_{\text{outer}} - V_{\text{inner}}$

$V = \pi * R^2 * H$

$V_{\text{outer}} = 3.1415926 * 4.5 * 4.5 * 30 = 1908.518$

$V_{\text{inner}} = 3.1415926 * 4.3 * 4.3 * 30 = 1702.351$

$V_{\text{tube}} = 1908.518 - 1702.351 = 206.167$

Your tube on the other hand, folds back on itself so it makes sense that it'd be 1/3 more volume.\.

Subject: Re: Is shapeways charging for empty space?

Posted by [Fredd](#) on Sat, 08 Dec 2012 02:23:14 GMT

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if your modelling dimensions are intended to be in cm., Its dimensions in Meshlab, nettfab, and blender were 11.974 x 4.571 x 4.571. Wall thickness was about a mm.. For the dimensions SW showed, everything got scaled by 2.5. Scaling is good, but it also effects wall thickness, thus material volume. Your discrepancy in Your volume, and Sw's was caused by this factor.

For an experiment, model a openended cylinder of the dimensions you want, attach the file here. We will give advice on your workflow to get it ready to print at SW. include the dimensions you want in units.

(what your program displays.)

Keith

Subject: Re: Is shapeways charging for empty space?

Posted by [Fredd](#) on Sat, 08 Dec 2012 02:27:28 GMT

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Meshlab plus Netfabb displays volume also. I now have to recover from Stoneys math lesson,

Subject: Re: Is shapeways charging for empty space?

Posted by [Steps2light](#) on Sat, 08 Dec 2012 03:08:23 GMT

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Thanks for the MEASUREGEOM lesson.

My object came out to be 20" or 50cm in Volume.

So perhaps I am not saving it correctly in AutoCAD.

I had one suggestion of using FACETRES and STLOUT.

FACETRES did something about triangulating something so not sure if that is the command that disturbed my object.

IS there a better way to transform an object into an STL out of AutoCad?

Subject: Re: Is shapeways charging for empty space?
Posted by [JACANT](#) on Sat, 08 Dec 2012 14:27:18 GMT
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There are three commands you should use in Autocad to set up your drawing.
FACETRES set to 10. This smooths out your model especially curved objects.
ISOLINES set to 0. This hides all of the 'meshlines', so you can see the object better.
DISPSILH set to 1. This shows a 'silhouette' of the object in wire frame mode.
After each command type in REGEN to see the effect.
I would save this now as an DWT file 'Template' then each time you start a new drawing these values will be set.

There is only one way to get an STL file from AutoCad
File - Export - Export Data. You can only export solids or water tight meshes.
Make sure you are in WCS other wise the model will be on it's side.
Although it looks smooth in AutoCad you need to view it in Netfabb to see the real effect.
WYSIWYG in Netfabb.
The images show what the effects are.

File Attachments

1) [AutoCad.png](#), downloaded 198 times

Subject: Re: Is shapeways charging for empty space?
Posted by [Steps2light](#) on Mon, 10 Dec 2012 05:34:58 GMT
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So I figured it out thanks for your guys help.

I did upload and make the drawing correct. I just did not know about cm's and how quickly they add up. Plus I underestimated what the process costs due to not knowing Volume.

So in CAD and netfabb my model is 20" and 333cm in volume.

Thanks
