
Subject: Volume (price) calculations don't appear trustworthy
Posted by [Xcapee](#) on Mon, 03 Nov 2008 10:21:32 GMT
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Ok - I have to say that the pricing policy is great - only paying for volume printed. It's just that I don't trust the volume calculations.

I have uploaded a design stage by stage, and the price (volume) calculations don't make any sense.

All prices quoted are in WSF

The first part, an empty tube with 1mm thick walls, ID = 35mm, OD = 37mm and height 23mm costs \$4.86 which equates to 2.6 cm³. This is the correct volume.

Cylinder model

Add a ring of warped text to the top of it, thickness = 1mm, height = 7mm. If it weren't text, but a solid cylinder it would have a volume of 0.8 cm³. Since it is text, it should be a lot less than that. However the price for my original cylinder plus text ring is now \$10.17, or a total of 5.4 cm³, more than double the volume and cost of the plain cylinder alone.

Cylinder plus text ring

Something funky is going on with the text volume calculation.

It gets worse.

If I add a ring of text around the original cylinder (not on top of it) so that the effect is embossed text raised 0.5mm, that should add much less than 0.4 cm³ but it adds another 2.8 cm³ or 2.9 cm³ (I have two such embossed text rings).

So my final model is being priced at \$20.91 when the price should be well less than \$10. Probably less than \$7.00.

It doesn't really give me much confidence in the pricing for more complex models.

Would anyone care to explain what's going on?

Subject: Re: Volume (price) calculations don't appear trustworthy
Posted by [Whystler](#) on Mon, 03 Nov 2008 15:04:07 GMT
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Hi there,

I have never experienced a problem with volume miscalculations. They have always been bang on for me.

You should check the volume in your 3D program before you import your model into Shapeways. That will definitely give you the answers you need to really know whether Shapeways is miscalculating.

I always check my models in 3D Studio Max first, and they have always had exactly the same volumeXprice outcome.

If you are using Max, then select your model, click on the hammer icon which appears in right-hand windows, and then choose the measurement button. It will tell you the exact volume and measurements of your model.

-Whystler

Subject: Re: Volume (price) calculations don't appear trustworthy
Posted by [joris](#) on Mon, 03 Nov 2008 18:27:03 GMT
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Xcapee,

We haven't yet found a problem with our volume price calculations.

We tested them extensively and I personally can't see how they could provide errors.

But, if they do we'd be really keen to repair the issue.

Did you check the actual volume of the individual models in your modeling tool?

If you send me the original files, I'll check them.

Joris

Subject: Re: Volume (price) calculations don't appear trustworthy
Posted by [Xcapee](#) on Mon, 03 Nov 2008 20:20:08 GMT
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Thanks for the replies.

I'm just going by plain logic. The ring of text should be less volume than its bounding cylinder, yet it's priced at 3.5 times the bounding cylinder.

I am using Blender (complete newbie). Can anyone tell me how I get Blender to calculate the volume?

I am uploading x3d files. Not sure if it could be a weird thing in the X3d throwing off the calculation, but the shapeways previews look alright.

Subject: Re: Volume (price) calculations don't appear trustworthy
Posted by [Xcapee](#) on Mon, 03 Nov 2008 21:33:52 GMT
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Ok, so I just found this script to calculate volumes in Blender.

The final model yields a volume of 3.54cm³ which would be a price of \$6.62 (pretty close to my estimate).

The price calculated by Shapeways for my final model is \$20.91, over three times the correct price.

There definitely is a bug in the pricing calcs.

Subject: Re: Volume (price) calculations don't appear trustworthy

Posted by [Xcapee](#) on Tue, 04 Nov 2008 20:34:34 GMT
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Thanks to Joris who checked my model and found an inverted normal.

I recalculated all the normals, re-exported it, and then uploaded, and now it prices correctly.

So a warning to all to ensure no inverted normals as the pricing calcs don't seem to pick it up.

Is it possible to have auto correction of inverted normals on upload?

Subject: Re: Volume (price) calculations don't appear trustworthy
Posted by [joris](#) on Wed, 05 Nov 2008 12:31:13 GMT
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We're working on it!

I'm glad that your issue is solved.

Joris

Subject: Re: Volume (price) calculations don't appear trustworthy
Posted by [kaldosh](#) on Wed, 09 Sep 2009 10:26:40 GMT
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I think i accidentally found the cause of this one.

a standard, 1x1x1 cube: 1 cm³

a 1x1x1 cube, with a .9x.9x.9 cube inside it, with the smaller box having normals pointing in (i.e. a hollow cube).. lower price

the same two cubes, but with the normals on the smaller box pointing out (i.e. supposedly same as the first one.. filled, and some more filled): higher price.

that is: the price is higher than even the bounding box of the entire mesh.

and moving the smaller box out to beside the larger box the same price as if it was inside (although it would be more material)

it seems to be just adding up the sum of all manifold meshes, even if that means it is counting one region multiple times.

although i suspect this is probably error-prone or complicated to fix it to never double up, as a

simple sanity check, the price should never be more than the price of the bounding box.

with your font example, i suspect it is putting multiple colliding meches inside each other, thus making one region be counted twice.

Subject: Re: Volume (price) calculations don't appear trustworthy
Posted by [Tommy_2Tall](#) on Wed, 09 Sep 2009 11:04:41 GMT
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Xcapee: you may want to check out this script;
it's not only calculates volume but also checks for manifold errors and calculates Shapeways cost (with configurable markup etc).

Also I thought about your problem and another explanation could have been overlapping objects (if the volume of the text and the volume of the ring overlap they are counted twice, if that hasn't been fixed yet).

Subject: Re: Volume (price) calculations don't appear trustworthy
Posted by [chris89](#) on Wed, 21 Oct 2009 18:20:07 GMT
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on a complex object there might be a lot of overlapping meshes though, which means lots of people have been paying more than the actual volume of their model?

Then again, i guess it makes up for the loss of support material etc. in closed but hollow meshes.