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Subject: Minor design rule changes for WSF  
Posted by [nancyliang](#) on Wed, 23 Nov 2011 16:31:08 GMT  
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Hey all!

I have a few small changes to the White Strong & Flexible material. We've been working on learning how to print bigger parts more effectively after welcome The Beast (our EOS P760 Printer) to the Shapeways family.

These changes should only affect less than 1% of the WSF parts.

There are a few proposed changes:

1) Maximum bounding box: 66x35x55 cm (3 cm off of each dimension). We've found that parts extending to the edge of the printer tends to get warped, so to make sure the parts turn out dandy, we are shaving 3 cm off of the larger pieces.

2) Wall thickness for bigger parts: we will no longer be distinguishing between outer and inner walls. I think this just confused people and didn't really help that much anyway. The walls for big parts (parts with any dimension exceeding 11.7cm or 4.6in) should be thicker as the part gets bigger. There's a handy calculator to help you figure out what the minimum wall is for your model.

3) WSF Minimum Bounding Box: there are a few really really small parts that we've cost in the dusting sieves. We are currently working on a minimum bounding box for WSF parts. It will be something like 2.5x.2.5x2.5mm or something where the bounding box dimensions add up to 7.5mm.

We will have more info on the bounding box, and hope to kick these changes live starting next Monday.

Thanks,  
Nancy

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Subject: Re: Minor design rule changes for WSF  
Posted by [ancientbuzzard](#) on Wed, 23 Nov 2011 16:39:25 GMT  
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Nancy

Thanks for the heads up on this. It's like tiny bits of Lego. No matter how many times children are told not to leave tiny bits on the floor, and despite valiant efforts of the adult using it, that

"essential" tiny bit always go into the vacuum cleaner!

Having a total bounding box figure, rather than just a minimum in any (or all) axis of a model, makes things more flexible for us when designing. Look forward to getting more info in due course.

Andrew

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Subject: Re: Minor design rule changes for WSF  
Posted by [nancyliang](#) on Wed, 23 Nov 2011 17:15:56 GMT  
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Thanks for understanding! Just got the final bounding box: 2.5x2.5x2.5mm. That's still fairly small bounding box, so it should only affect less than 1% of the models.

Thanks,  
Nancy

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Subject: Re: Minor design rule changes for WSF  
Posted by [GWMT](#) on Thu, 24 Nov 2011 03:44:08 GMT  
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Hi Nancy;

What if we added support ribs (thicker material than the minimum wall thickness) every 117mm or less and keep the wall thickness at 0.7mm? Kinda like this example:

<http://woodlandscenics.woodlandscenics.com/show/Item/35100/page/1>

A 217mm long wall 0.7mm thick with 5mm ribs 1.3mm thick at both ends and two more ribs in between has 42% less material in it than a 217mm wall 1.3mm thick - that's one hell of a big difference in cost:

Using the top example with the ribs: does the software see a 217mm wall and reject it because it's too thin or would it see three walls 65mm or 66mm long and 0.7mm thick joined to four walls 5mm long and 1.3mm thick and accept it?

## File Attachments

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1) [WSF wall thickness area comparison.jpg](#), downloaded 453 times

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Subject: Re: Minor design rule changes for WSF  
Posted by [henryseg](#) on Thu, 24 Nov 2011 05:36:45 GMT  
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Hi Nancy,

The calculator still shows calculations for inner and outer walls, so I'm confused about what the requirements are.

Here is an example of what I'm planning to print (now scaled down to fit in the new bounding box). The structure is made out of (well supported) lines rather than walls, should I go for lines of the thicknesses listed? For the example, the thinnest lines are 2mm diameter, and the thinnest lines on the outside of the piece (that it could rest on if put on a table) are 4mm. Is this ok?

Also, you said "Maximum bounding box: 66x35x55 cm (3 cm off of each dimension)". That would be 4cm off the longest dimension. Did you mean 67x35x55?

Thanks,

Henry

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Subject: Re: Minor design rule changes for WSF  
Posted by [tebee](#) on Thu, 24 Nov 2011 14:47:49 GMT  
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Would it be possible to adjust the bounding box to allow production of large but flat object? say something 1mm x 20mm x 30mm ?

I know I can always stick a sprue in it somewhere to get round this but it annoys me having to do this and removing it adds one more job to the cleaning up process.

Tom

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Subject: Re: Minor design rule changes for WSF  
Posted by [NormL](#) on Wed, 21 Mar 2012 15:14:51 GMT  
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I don't see that the question regarding gusseting (ridges) was ever answered.

I am trying to print a fender, yes a car fender, for casting a mold from and it has a very long overall length of 619.55 mm. So I created a heavily gusseted model that has no portion of material unsupported for more than 112 mm.

It is getting rejected. The rule of applying the thickening to the whole model without regard to structure would make this model 5.3 times more expensive and just does not pencil. This does not make sense

I can see thickening a little, but, 3.5 mm is unnecessary for something gusseted like this is. Hopefully there can be a happy compromise found. I do plan on doing quite a few of these in the coming months, but, I can't do it with the way this rule is being enforced.

#### File Attachments

1) [511011.v0.s14.convert.large.jpg](#), downloaded 281 times

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Subject: Re: Minor design rule changes for WSF  
Posted by [nancyliang](#) on Wed, 21 Mar 2012 19:49:38 GMT  
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Hey!

The problem is when we print thin walls, the thin walled sections are flimsy. Now, it could be that when you add support ridges, the weaker sections will not warp, they are still weak. Also this depends on how big your ridges are, and what is their structure.

And for bigger models, I've actually seen things around 3mm thick that are still flimsy (I mean, huge flat pieces of overhang). So there's a reason for the need to be that thick.

I'm pretty sure 0.7mm at that size won't work even given the structure, but let's see what we can do!

Thanks,  
Nancy

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Subject: Re: Minor design rule changes for WSF  
Posted by [NormL](#) on Wed, 21 Mar 2012 20:20:46 GMT  
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OK, great! Thank you.

I would like to print one of the fairings that are in my models to see how it goes, but, when I submit them they get rejected. I can thicken them, obviously, ... but, I kind of need one done to gauge the rest. I would like to do this one <http://www.shapeways.com/model/510878/906a835aa6cea48a2a217562a1208f95> because it has a big flat gusseted surface on it. All the curved surfaces will be stronger just because they are curved surfaces. As you already stated it is 0.7 mm throughout and maybe I was being a little optimistic with that. If I use the calculator it states the walls should be 2.48. Can I print a 1.0 or 1.2 mm as a test?

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