
Subject: How would you print that?

Posted by [Magic](#) on Mon, 08 Nov 2010 07:38:39 GMT

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Hi all,

I have done a model called Ring'n'Roll, basically two nested rings that can roll one inside the other, and I was wondering how to position the 2 moving parts in the stl file before printing. Actually, for the initial model the regular Ring'n'Roll I turned the internal ring of 90°. My goal was to minimized the area of contact between the two rings, to avoid they get fused (the thickness is 2 mm and the clearance 0.75). I already ordered it in Alumide in this position. But I am now wondring if, depending on the printing direction, there could not be a deformation that could occur differently on each ring, and prevent them from moving freely.

So for my next model (not ordered yet), the Ring'n'Roll with Holes I decided to keep the 2 rings lying flat on the horizontal surface.

See the automatically generated thumbnails on these models, or this rendering:

The first one is "flat" the second one "turned at 90°".

What is you opinion or experience on this topic?

File Attachments

1) [RollnRollPositions.jpg](#), downloaded 418 times

Subject: Re: How would you print that?

Posted by [virtox](#) on Mon, 08 Nov 2010 09:11:20 GMT

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Cool! Great minds..

I've been pondering the same principles/problems:

Despite orientations, too much deformation could always kill the principle.

And even when built with 0.6 mm clearance, I think, in WSF it might fuse.

On the other hand, I'm afraid the clearance might even be to much and cause to much jiggle.

One of the options I'm trying, is using a lot of small bulbs on the outside of the inner sphere or the inside of the outer sphere. Might even be able to cheat a little with the clearance then.

Would not really work for a version with holes though

Very curious as to how you Alumide model turns out!
I've been putting of ordering the sphere, afraid of an expensive disappointment

Cheers

File Attachments

1) [Shellock Full.jpg](#), downloaded 392 times

Subject: Re: How would you print that?
Posted by [Magic](#) on Mon, 08 Nov 2010 22:31:01 GMT
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Yes, you are right Virtox: if there is any deformation along an axis, any of these two positions will lead to some issues since the rotation must happen in any direction.
So I guess I should go on with my initial plan and try to minimize the contact area between the two rings to avoid their fusion.
The rings were initaly planned to be in metal, but as you said, that's an expensive experiment.

What are the dimension of your design and for which material is it planned? Is it a kind of box?

BTW, your idea about adding bulbs is very interesting (also because it minimizes friction). But if you think holes can be an issue, then watch out! Even in your design, you still have a big hole

As soon as I received my Ring'n'Roll (sounds better than Onion Ring, right?), I will post some pictures.

Subject: Re: How would you print that?
Posted by [virtox](#) on Tue, 09 Nov 2010 00:21:57 GMT
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Yup, great name

But yes, Onions, wonderful subject for experimentation and inspiration

I came up with: balls + box ~ ballox ~ bollocks
So eh no, currently it has no title

Initially it was just planned as a fun multi layer round box pendant for wsf. (about 5 cm)
But I dismissed that because of material cost and the clearance/jiggly/fusing issues.
After reading up some more, I'm curious if 0.75 mm clearance would be enough.

But I don't think metal would ever work on my design, would be difficult to keep the two parts separate.

I have no idea what kind of grain size they use for packing/stuffing for the sintering, but trying to fill a large thin area like this.. seems doubtful.

Then again I might still not understand the process fully

So as I have never even tried the detail materials

I might give those a shot. Especially since seeing the headspace bowl in real life.

For the metals I have adapted the design, hope to finish and order those soon.

Cheers!

Subject: Re: How would you print that?
Posted by [Magic](#) on Mon, 15 Nov 2010 22:46:30 GMT
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It arrived!

On my side, I planned to have 3 layers and also to add gears!
Stay tuned!

File Attachments

1) [ringnroll1.jpg](#), downloaded 279 times

Subject: Re: How would you print that?

Posted by [bartv](#) on Tue, 16 Nov 2010 09:49:06 GMT
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Cool! And, how well does it move?

Bart

Subject: Re: How would you print that?
Posted by [Magic](#) on Tue, 16 Nov 2010 12:48:54 GMT
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It rolls very well, Bart. The clearance is perhaps slightly too large (0.5mm would perhaps be enough). But it can roll in any directions (the two rings being parallel or perpendicular) and you can make the inner ring roll inside the outer one or the outer one roll around the inner one. It is pure pleasure!
I will post a video for the end of this week, hopefully.
