
Subject: Hi

Posted by [Fake](#) on Tue, 27 Oct 2009 06:07:52 GMT

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Hi. I've lurked here a little and love the idea of the 3d printing. I especially like the idea of being able to measure stuff, 3d model stuff, then getting a real copy of it. I see possibilities.

Now, I'm thinking of making a rc plane mostly with shapeways parts. I realize it would have to be hollow. I'm thinking that you make a full 3d model of it in a cad program, then get stuff like the wing struts (braces, supports, profile thingo that goes inside the wing) made by shapeways, as well as the main body and servo mounts. Now, for this there is two main questions. How strong is the materials, and how light. Obviously it needs to be really light, yet strong. Which of the materials would be best for this (Also, cheapest is good as well, yet as long as you dont' say SS).

An example

A aerofoil shaped piece, with 3 holes in it (to cut down weight). 10cm long, 4-5 high. How thick would this need to be? I'd hope just 1mm,(for weight), however slightly more would be fine.

edit: Also, I would be interested in making connections for water bottle rockets. I'd guess these would need to be a little thicker, but thats not so big of a deal. However, these connections undergo huge strains (I hope to get up to 140psi, common is probably 50psi). These parts should last a long time, and not be permeable to water and air (and maybe hydrogen gas).

I have considerable experience in blender, but not for scale modelling. I have used autodesk inventor, a CAD program before, so i am not really new to CAD. I could probably use inventor to make some parts, but i would prefer to use blender if it's equal or better. Autodesk inventor doesn't properly create screws and thread (it just puts a texture on), so any tutorials on how to make screws would be nice. I think I may have discovered a way, using blender's boolean tools and screw tools, but it doesn't look very good.

Subject: Re: Hi

Posted by [crsdf](#) on Wed, 28 Oct 2009 03:36:24 GMT

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Hey bud,

By far the best material for your application is WSF (SLS). Its a tough nylon that can be quite light when thin, but also flexible and strong.

Its the roughest material available, but its easily sanded back. The example you suggested would probably be fine at a mm.

The bottle rockets would also be fine out of WSF as long as they were sufficiently thick (you'll have a seriously tough time breaking anything over 5mm thick).

Subject: Re: Hi
Posted by [Fake](#) on Sat, 07 Nov 2009 21:42:18 GMT
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I was just wondering how much 1cm³ of WSF weighs?

Subject: Re: Hi
Posted by [Magic](#) on Sat, 07 Nov 2009 22:44:33 GMT
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The density of WSF is a little less than 1g/cm³.
I measured the volume in my software tool, and the weigh of the actual object, so the results are perhaps not 100% precise (it depends on how faithful the dimensions of the actual printed object are compared the virtual modelised object).
With this method, the results are varying between 0.95 and 0.98g/cm³.

Subject: Re: Hi
Posted by [Fake](#) on Sun, 08 Nov 2009 00:39:11 GMT
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Thank you. Do you happen to know how this compares to balsa wood?

Subject: Re: Hi
Posted by [Magic](#) on Sun, 08 Nov 2009 07:01:49 GMT
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I have no experience with balsa wood, but from what I can read on Internet, its density is varyng from 0.08g/cm³ to 0.23g/cm³, the average value being 0.16g/cm³.

So WSF is at least 4 times heavier, in the best case (12 times in the worst case).
