
Subject: Wire slenderness

Posted by [bcheplak](#) on Sun, 17 Feb 2013 16:43:45 GMT

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I am wondering if a wire in my model will be too fragile using the strong & flexible plastic. From the guidelines (<http://www.shapeways.com/materials/strong-flexible-design-guidelines>), it appears that the maximum cantilever (free end) wall length/thickness ratio should be at 166:1. I have a wire supported on each end that will be a length of 242mm and diameter of 1.44mm (just about at 166:1). I am ok if it is flexible, but don't want it to easily break.

Any expert opinions with this material would be greatly appreciated!

File Attachments

1) [Rod Diameter.png](#), downloaded 218 times

Subject: Re: Wire slenderness

Posted by [UniverseBecoming](#) on Mon, 18 Feb 2013 00:30:47 GMT

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I haven't printed anything in this material yet so I can't say for sure. Take a look at this recent AAE video and see if you can decide for yourself.

[EDIT] recent

I'm surprised I caught that! It's not a typo, I really have no idea how to spell!

Subject: Re: Wire slenderness

Posted by [henryseg](#) on Thu, 21 Feb 2013 09:38:09 GMT

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You might be ok at 1.44mm diameter. I would think 2mm would be on the safer side, although I've never made anything that long without cross supports.

Subject: Re: Wire slenderness

Posted by [Mhagan](#) on Thu, 21 Feb 2013 15:17:52 GMT

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I would suggest 2mm if the aesthetics of you part allow it. We might be able to print and ship it at the 1.44mm thickness you have, but it won't be a very durable piece at 1.44mm thick.

Subject: Re: Wire slenderness

Posted by [UniverseBecoming](#) on Thu, 21 Feb 2013 18:37:18 GMT

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I have an idea for you programers. What would be really cool is a CAD system or plugin that has all the design rules for each kind of 3D printed material built in and continuously checks your work as it is created.

I know the OP's engineering question doesn't violate the design rules and is more of a FEA situation, but it reminded me of how often I go to the page that has the design rules for whatever material I'm trying to design in. If these rules could be more readily available within the CAD software or better yet pops up a warning when a design rule has been violated the creation process would be improved.
