
Subject: tolerance material (or more accurately clearance)
Posted by [simonp54](#) on Mon, 22 Oct 2012 17:00:22 GMT
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Hello,

I'm going to be building items with poles and holes... what I need to know is what clearances need to be between the hole and the pole...

I am looking for a snug fit but must not be loose...

I know its going to depend on the material... but surely there should be a guidelines info table that gives this kind of information... I cannot seem to find anything...

e.g. Hole 2.00mm --- pole to go through hole (tight) =?mm

I have seen people producing models for "friction tests" (see bartv) but think that we all need to know this... so should be supplied as support info?

Should also mention that I wish to print them in place at the same time without fusing together!

Many thanks in advance.

S

Subject: Re: tolerance material (or more accurately clearance)
Posted by [virtox](#) on Mon, 22 Oct 2012 17:53:52 GMT
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I am a bit confused, you want snug but removable fits, while printed in place?
You can't have both yet.

On the design guidelines for each material you can find the minimal clearance for parts to be separate.
But depending on the material you should take into account that large contact surfaces need more clearance due to friction (especially s&f)

With the accuracy from the same pages you should be able to determine whether a material is suited for your required levels.
For snug fits, some sort of snap-fit is usually the way to go.

There used to be a few pages with hole and peg examples, but I guess the info itself is at least compile in the design guidelines.

Cheers!

Oops, example link: <http://www.shapeways.com/materials/strong-flexible-design-guidelines>

Subject: Re: tolerance material (or more accurately clearance)

Posted by [GWMT](#) on Tue, 23 Oct 2012 21:13:07 GMT

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For Frosted Detail I find 0.06mm clearance all around the pole (if pole diameter is 0.99mm, hole diameter is 1.11mm) works well. I first lightly cleaned out the hole with a knife to remove the 'boogers' left from printing (look at the part under a 20x magnifier; they look like boogers) but you don't need to do that if the hole is open on the other end and you're careful pushing them together.

I've successfully put together Frosted Ultra Detail parts with only 0.03mm difference in diameter (pole is 0.99mm, hole is 1.02mm) but you need to be very careful you don't snap off the pole when you insert it into the hole the first time.

I swear I heard Beavis and Butthead laughing as I wrote that last paragraph

Edit: The parts mentioned above were printed separately and assembled after delivery, not printed in their final assembly locations.
