
Subject: Screw design

Posted by [dennik](#) on Fri, 01 Feb 2013 23:01:34 GMT

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Have you guys found a screw design that works well with 3D printed models?

I have a model that looks like a flashlight encasing, about 2" in diameter, and I need to figure out what kind of screw threading would work that screws tight enough without breaking.

Any suggestions are much appreciated.

Thanks

Dennis

Subject: Re: Screw design

Posted by [wiwa](#) on Tue, 19 Feb 2013 22:45:43 GMT

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Hi Dennis

Standard threaded features definitely won't work below size M6, and there is a good chance they will be oriented wrong in the print which will mess up the threading anyway.

What you can do to make threaded features work really well on 3D printed parts:

- Use ACME (trapezoidal) thread profile with a very large pitch, at least 6mm pitch (2mm+ thread width)
- Taper the thread 2 - 5 degrees
- Loosen the engagement slightly (80-90% engagement)

I have an example of a good working (smaller) thread that you can download here:

<http://www.shapeways.com/model/885862/threaded-keychain.html>

This thread is the same diameter as an M3 but will come out of the printer correctly in any orientation

This works well down for smaller threads (down to M3) and for larger diameter, fine pitch threads, where you want to make sure the thread will come out properly

Subject: Re: Screw design

Posted by [UniverseBecoming](#) on Fri, 22 Feb 2013 07:55:30 GMT
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Wiwa, I followed your link to download the example, but there is no download button. I'd like to take a look at your thread design. Thanks.

Subject: Re: Screw design
Posted by [JACANT](#) on Fri, 22 Feb 2013 18:49:57 GMT
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Any of these designs can be produced in 3D.
Whether they are fit to be printed is really based on trial and error, and of course the size and the tolerance.

File Attachments

1) [Screw threads.png](#), downloaded 430 times

Subject: Re: Screw design
Posted by [wiwa](#) on Fri, 22 Feb 2013 19:17:31 GMT
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Hey Guys,

Sorry I moved the model around. I edited the original post to include the correct link.

@JACANT

Actually at small diameters under M6 these will not come out at all, and for larger diameters they will only come out if they are in a vertical orientation which we can't guarantee. They won't come out at larger diameters at other than vertical orientation because they will get squished during sintering. Here is a picture of two M8 screws, on the left printed vertically and on the right printed horizontally - note the one on the right is squished, and will not fit in an M8 hole.

That's why I recommend an extra large pitch ACME thread for any threads to be sintered. Having a large pitch and trapezoidal threads (importantly, thread spacing > 0.5mm and thread size > 0.5mm and resulting pitch >= 1mm) and loose engagement means the squishing will not make a difference in threading the piece. Actually many of those thread styles will work as well as ACME,

as long as the pitch and thread size is suitable (so for small diameters, a standard pitch / thread size particularly will not work and you'll have to adjust accordingly)

File Attachments

1) [threads.jpg](#), downloaded 98 times

Subject: Re: Screw design

Posted by [UniverseBecoming](#) on Sat, 23 Feb 2013 05:00:46 GMT

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Wiwa,

No, still no download link.

Jacant,

Great info! I saved this to my "building stuff" directory on my hard drive for future reference.

Thanks!

Subject: Re: Screw design

Posted by [AmLachDesigns](#) on Sat, 23 Feb 2013 07:50:07 GMT

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Wiwa,

at the risk of seeming like an idiot have you checked the 'Allow Downloads' box at the bottom of your Edit Model page?

Subject: Re: Screw design

Posted by [JACANT](#) on Sat, 23 Feb 2013 19:40:50 GMT

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It may work better and be easier to print if you use a 'Lamp holder screw thread' if your model looks like a flashlight encasing.

http://en.wikipedia.org/wiki/Edison_screw

File Attachments

1) [Edison Screw.png](#), downloaded 327 times

Subject: Re: Screw design

Posted by [niic](#) on Fri, 29 Mar 2013 09:54:52 GMT

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Hi,

I am really interested in seeing the screw design that you mentioned was available for download ...but I also can't find the download link?

I am really new to the 3D printing process so hoping to learn from others.

Thanks for any help.

Great info from everyone else as well.

Cheers all
