
Subject: Geared D6

Posted by [Magic](#) on Fri, 29 Apr 2011 09:37:18 GMT

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Hi all,

As stated in another thread, I am currently working on a geared D6 with working gears for Frosted Ultra Detail.

Here is a first rendering.

Each number on a face is represented by pips that are gears linked together. The gears from one face are linked to the gears from another face by internal gears.

I plan to make a big hole on the gear of face number one, in order to make the wax escape and to allow turning that gear easily.

It is 3x3x3 cm. The thickness of the gears are 1mm. The clearances are 0.25mm on the radii (0.5 mm on the diameters). It's a difficult balance. The gears should not be too loose and that the wax should be able to escape (and of course the different parts should not fuse together)...

It is still work in progress, but i wanted to share.

The internal mechanism is nearly ready, but I have some issues with the shell (boolean operations fail more than they succeed).

I keep you updated. Comments are welcomed.

File Attachments

1) [GearD6.jpg](#), downloaded 225 times

Subject: Re: Geared D6

Posted by [stop4stuff](#) on Fri, 29 Apr 2011 10:30:49 GMT

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That's looking good!

Subject: Re: Geared D6

Posted by [Magic](#) on Fri, 29 Apr 2011 14:15:41 GMT

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Thanks Stop4stuff.

After hours of hard work, fighting against booleans (with the wedding of William and Kate as only distraction), I managed to finish the design.

Now the question is: does it work? Am I too demanding with Frosted Detail?

As I have already an order on its way, I will probably wait a little bit before giving it a try. But the waiting will be really unbearable...

For those who are even less patient than I am (and at their own risks), check here:

- Geared D6
- Geared D6 Shell (It has been so difficult to make, that it deserves to be a die per se).

File Attachments

1) [GearD6_final.jpg](#), downloaded 507 times

Subject: Re: Geared D6

Posted by [henryseg](#) on Fri, 29 Apr 2011 15:02:59 GMT

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That's a very cool idea. Perhaps a slightly easier variant would be an octahedral d8 with one gear for each face, and just a number written on each gear-face. The same would work for any polyhedron with every cycle of faces having even length.

Subject: Re: Geared D6

Posted by [Magic](#) on Fri, 29 Apr 2011 16:02:04 GMT

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Thanks Henryseg. Yes, I will probably do a D8 with one gear for each face once I will be able to check if the clearances are OK.

This is the only platonic solid having an even number of faces joining at one vertex.

Then, the other polyhedra that could be tried are the cuboctahedron, the icosidodecahedron (very linked to the octahedron actually because they are the intersection of dual polyhedra, and the octahedron itself is the intersection of a tetrahedron and its dual tetrahedron), the rhombicuboctahedron and the rhombicosidodecahedron.

Subject: Re: Geared D6
Posted by [Magic](#) on Sun, 08 May 2011 13:30:01 GMT
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Even though I did not received the previous order, I ordered the Geared D6. So hopefully it will be in the "It arrived" section in two weeks.
In the meantime, here is an animation of the Geared D6 in action...

Subject: Re: Geared D6
Posted by [Etherlord](#) on Wed, 21 Dec 2011 17:14:48 GMT
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What happened to the project?

Subject: Re: Geared D6
Posted by [Magic](#) on Wed, 21 Dec 2011 21:43:40 GMT
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Hi Etherlord and welcome to Shapeways,

Actually, the Geared D6 prototype arrived: you can find a thread here:
http://www.shapeways.com/forum/index.php?t=msg&goto=2794_0#msg_27940

There is also a video.

Unfortunately, as you can see in the video, the gears are not turning properly. It is a misconception problem. I understood what the issue is, I know how to fix it, but I did not take the time to fix it: I would have to redraw the whole die, and as there are so many pieces, it is very time consuming...

But if there is an interest into this die, I will try to fix it, probably by the end of January.
Stay tuned!

Subject: Re: Geared D6
Posted by [Etherlord](#) on Sat, 24 Dec 2011 00:16:00 GMT
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Yes, I saw that and I must say it is simply most awesome dice I ever saw or imagined. Well, now I

can imagine a mini battery and motor rotating the gears, but that would be an overkill for someone so in love for gears like me.

I'd really like to buy such a d(ev)ice. Good luck and thanks for Your answer, maestro.
