
Subject: Double Marble Pendants

Posted by [Magic](#) on Sat, 12 Sep 2009 14:27:09 GMT

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Hi all,

Yesterday, I received at my office the package of what I ordered from Shapeways. As there are a lot of objects, not really related one to the other, I will do separate posts.

So let begin by the double marble pendants.

It is a pendant made of 3 separate pieces, that connect together thanks to 2 marbles.

There are 3 different designs, but I printed only 2:

the original one:

the second variation (which is a wireframe):

The first variation has not been printed yet.

The upper part has a little ring to put the necklace, and its round shape allow you to place a 16mm marble into it.

The marble can move freely inside it.

You can wear it like this, or add the middle part and a second marble or directly the ending part.

It is quite modular: obviously the upper part is mandatory, but the ending part is always optional, and the number of middle parts will allow you to use the number of marble you wish.

If you want the marbles to stay horizontally instead of vertically, you will have to use 2 upper parts, one at each end.

Of course you can change the colors of the marbles depending on your humor.

Here are some other results:

WSF is flexible enough to insert the marbles, but I am unsure if a metal printing could be done...

Anyway, I am very happy with this designs.

Oh, another interesting (or not) usage: with only one ending and one marble, you can make the marble roll and roll for hours in your hand (during a meeting for instance), exactly as my very first printing, the cubosphere...

File Attachments

1) [double-marble-pendant-v0.jpg](#), downloaded 532 times

- 2) [double-marble-pendant-v2.jpg](#), downloaded 548 times
 - 3) [OneMarbleWithoutEnding.jpg](#), downloaded 553 times
 - 4) [OneMarblePlusEnding.jpg](#), downloaded 534 times
 - 5) [ThreeMarbles.jpg](#), downloaded 557 times
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Subject: Re: Double Marble Pendants

Posted by [Nshortino](#) on Sat, 12 Sep 2009 16:55:55 GMT

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Interesting Design. I really like the idea, though how strong is the hold with the marbles. You say the marble can move freely, so how does it not fall apart from the weight of the next marble. You should see how much weight they'll hold before pulling apart. It would be a pity to be walking around with it on and accidentally tug on it and have marbles flying all over.

I really like the second variation because it allows you to see more of the marble. The original covers up too much, especially when bend like in the last picture, but maybe that's just my personal taste.

Either way, great job!

Subject: Re: Double Marble Pendants

Posted by [Magic](#) on Sat, 12 Sep 2009 18:01:10 GMT

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I am happy that you like them.

Actually, the marbles can roll but cannot fall from the structure (if the diameter is exactly 16mm of course). It is not very obvious, but in the pictures I posted the pendants are not standing on a table, but pending near a wall. So they can at least support their own weight.

Even if you are doing rapid and large movements, I am quite sure that there is no risk with the original design: I have some difficulties to remove the marbles when I want to change them.

It is much easier instead with the wireframe variation, because it is more flexible. So I guess it is also less reliable.

I agree with you that currently the original design is masking too much the marbles, but I think the shape is very cool. There should be some in-between solution between these two designs. Or perhaps with some decorative patterns on it, it could be "beautiful" by itself, and the marble would just be an extra stuff.

I will think about it.

Thanks for your feedback.

Subject: Re: Double Marble Pendants
Posted by [Nshortino](#) on Sat, 12 Sep 2009 18:29:05 GMT
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I like the idea of decorating the original idea. Perhaps smaller cut outs in various shapes, or just simply etched into the shape. I do agree that the shape itself is rather nice even without the marble.

You could also try with "cat's eye" marbles and have an eye shape cut into the original shape. Things like that could lead to some interesting designs.

Subject: Re: Double Marble Pendants
Posted by [Tommy_2Tall](#) on Sun, 13 Sep 2009 09:52:12 GMT
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Very nice work!

I've been playing around with a ball-in-ball link design of my own using a hollowed out printed ball with a smaller ball/T-joint inside but I never thought about that approach.. it's so simple and elegant

How much can each segment rotate (freedom of movement) with that design?

Subject: Re: Double Marble Pendants
Posted by [Magic](#) on Sun, 13 Sep 2009 11:22:43 GMT
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Actually, I was more thinking about using it to make some wheels (rolling in any direction) but yes, it could be used to make a join.

The WSF on the glass (and I guess also on metal) is moving with very little friction (I suppose it is not the case with WSF on WSF, given it's porosity).

Currently, with this design, I have only $\pm 15^\circ$ in all 3 axis (so 30° of range in total on each axis). I guess I can try to reduce the width of the "cap" to have $\pm 30^\circ$ but the whole mechanism would be much more fragile, in particular if the diameter of the marble is less than 16mm (they are not all exactly with the same diameter, some of them work better than others).

I added a video of the Double Marble Pendant on my channel in YouTube: you can see (and hear) the difference between the two designs: the first one is less flexible and so more reliable (you can always hear a "click" when you insert or remove a marble).

Subject: Re: Double Marble Pendants
Posted by [Magic](#) on Sat, 17 Oct 2009 17:51:45 GMT
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Hi again,

I received new versions of the Marble Pendants.
The first variation has now been printed.

I am not totally satisfied with the design: the clearance between the threads is not enough and so depending on how the object is printed the threads are sometime fused.

I managed to detach them quite easily, but the space between them is not enough to see the marble, so I will not keep this design (I cannot expect my customer to sand the models).

Instead, the 3rd variation is very nice.

It is sturdier than the second variation and it is largely showing the marbles. I think that, until now, this is the best compromise.

Note that the ring that allows you to put a necklace is now positioned at 45° so that you can see the pendants on a best point of view (you can see a sort of Yin Yang symbol on the last picture).

File Attachments

- 1) [DSC02333.JPG](#), downloaded 367 times
 - 2) [DSC02334.JPG](#), downloaded 377 times
 - 3) [DSC02325.JPG](#), downloaded 369 times
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