Subject: what's the best material for interlocked cubes?
Posted by nickmc on Fri, 18 Feb 2011 12:25:03 GMT
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Can you recommend the best material for the interlocked cubes?

thanks
nick

Subject: Re: what's the best material for interlocked cubes?
Posted by richgain on Fri, 18 Feb 2011 13:04:01 GMT
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Hi Nick

You can see lots of pictures of real interlocking cube puzzles in my shop, microcubology.
You will see that I have used mainly White Strong and Flexible but also a selection of other materials including Alumide, Steel, and Black/White/Transparent Detail.

'Best' is a subjective matter but there are a number of factors to consider including cost, strength and dimensional stability in all three axes. 3D printers can be very stable in two axes (X and Y) but vary slightly in the third (Z). This doesn't matter for sculptures, but for the close tolerances needed for interlocking puzzles it can be a problem.

White Strong and Flexible is polyamide, or nylon, which is very strong and stable but not smooth. The roughness adds a bit of extra friction to the movement of the pieces. You must reduce the size of each piece by a small amount to compensate for this or the pieces won't fit together.

Steel is by far the strongest, but is expensive and doesn't give a tight fit because it shrinks in the curing process. Getting the fit right involves a lot of experimentation and cost is a limiting factor for me in getting this right.

The Detail materials are waxy and smooth but not as strong as WS&F. They are also temperature sensitive and could melt if left in direct sunlight.

Alumide is 50% polyamide and 50% aluminium powder. It has a smoother feel than WS&F but is more brittle. None of my alumide pieces have broken yet but there are certain pieces I wouldn't use it for.

Hope that helps a bit.

Cheers

Rich Gain

Subject: Re: what's the best material for interlocked cubes?
Posted by nickmc on Fri, 18 Feb 2011 13:22:46 GMT
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yes thanks

Subject: Re: what's the best material for interlocked cubes?
Posted by jdjong on Fri, 18 Feb 2011 14:17:09 GMT
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a other factors to consider is that the WSF gets easy dirty on the corners that is why I always use a colored variant of WSF for puzzels.