Subject: 3D printing companies
Posted by mctrivia on Tue, 26 Jul 2011 23:50:32 GMT
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We all know shapeways and there print quality but what about there competitors? What has your experiences been with other companies. There pros, cons, price, and print quality?

I am curious because I hate FUD but I want to print a few models with that kind of detail. Would also be nice to find a company that would do drop shipping for some special clients.

No one company will be perfect at everything so I would love to here your stories.

Subject: Re: 3D printing companies
Posted by stonysmith on Wed, 27 Jul 2011 01:33:25 GMT
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It's SUPER simple.. every other company I've asked for a quote has told me 10x the price. No exception.

Subject: Re: 3D printing companies
Posted by mctrivia on Wed, 27 Jul 2011 01:42:13 GMT
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ponoko gave me half the price. But there minimum wall thickness is 1mm instead of .7mm for WSF

Subject: Re: 3D printing companies
Posted by duann on Wed, 27 Jul 2011 02:33:18 GMT
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Hey mctrivia,

I am surprised they offered at half price?
Does that include shipping? Did you have to pay a monthly subscription?

Also have you tested the print quality? As they use a different 3D manufacturer to 3D print their equivalent to WSF the prints are not as finely detailed and the surface finish not as smooth, nor is it a crisp white.

Subject: Re: 3D printing companies
Posted by mctrivia on Wed, 27 Jul 2011 02:55:02 GMT
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I did not go into 2 much detail in my search since there minimum wall thickness of 1mm automatically excludes them from my use.

Subject: i.materialise
Posted by trompevenlo on Wed, 27 Jul 2011 20:27:27 GMT
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pro:
significantly lower prices on certain models & materials (30-50% and more)
better color match & finish on color (no ugly yellow wax)
pretty flexible on minimum wall (have printed steel and color items with 1.5 mm wall thicknesses)
working feedback loop when a design is difficult to produce (no "your order has been cancelled"... !!)
ship to any customer address

con:
significantly higher prices on other models & materials
complex pricing, not easy to comprehend/predict (no simple $/cm3 scheme, need to check each model)
free shipping only starts at 99$/â,¬
somewhat slower on order processing & deliveries
no on-site gallery/shopping (can also be seen as a pro!)

Take a look at their new "Prime Gray" STL material, it may be something for you. I would believe they are not too strict on the 1mm wall. It appears to be cheap, too.

Subject: Re: i.materialise
Posted by mctrivia on Thu, 28 Jul 2011 02:26:20 GMT
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what is the equivalent to WSF on i.materialize? polymide?

as a comparison I uploaded D6 Grid Die 14-2

Polymide was E26.6
Stainless was E25 (shapeways won't print this in steel and my guess is they won't either)
Prime Grey was E2.36

I am not sure on the conversion but I sell my models for less then these prices. Shapeways does seem to be the winner in price range other then ponoko and they don't seem to have the quality.

In fact in my research the only place it looks like that competition could be is I could buy a wax printer with 19um accuracy for a reasonable price and make wax casts for those here interested in doing there own casting.

Subject: Re: i.materialise
Posted by jzichek on Thu, 28 Jul 2011 03:35:38 GMT
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Not to promote a rival company, but has anyone tried printing something in Prime Gray through i.materialise? How does it compare with Shapeways materials - is it roughly equivalent to Transparent Detail or Frosted Detail in surface quality/detail? I ask because I uploaded a part and it came in about 30% cheaper than FD. However, this may be more than offset by shipping charges, I don't know.

Subject: Re: i.materialise
Posted by mctrivia on Thu, 28 Jul 2011 03:42:36 GMT
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Just so you know Primary Grey has no suport material. Which means you nee to be careful about overhangs.

Subject: Re: i.materialise

Posted by stannum on Thu, 28 Jul 2011 04:32:50 GMT
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Sure? Prime Grey, being SLA, should use the same material as support, which means cleaning and probably rough surface in the zones where the support structure contacted the main object. Scratch the "should", their PDF says exactly that, and shows a dog built with the transparent material as demo.

Shapeways offers no SLA tech currently. The similar materials are Polyamide (WSF, etc), Alumide, Multicolor (Sandstone), High detail resin (machines like White Detail, etc here but probably not the same exact resin), ABS (Grey robust), Silver and Stainless steel.

Subject: Re: i.materialise
Posted by Mitchell Jetten on Thu, 28 Jul 2011 06:05:20 GMT
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- please delete -

Subject: Re: i.materialise
Posted by fx on Thu, 28 Jul 2011 06:10:21 GMT
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I was wondering about the cheap price of this "Prime Gray" (Think, it's SLA!). I asked their support about layer thickness, the answer was the layer thickness is 0.5mm...

Subject: Re: i.materialise
Posted by Mitchell Jetten on Thu, 28 Jul 2011 06:20:08 GMT
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0.5mm... you will see a lot of stairstepping with that thickness

Greetings from the person that is traveling already for 1.5hours to the office

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Subject: Re: i.materialise
Posted by phildlight on Thu, 28 Jul 2011 10:15:36 GMT
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This shows the stepping resolution of the gray material quite well.

Frog by i.materialise, on Flickr

Subject: Materials
Posted by duann on Thu, 28 Jul 2011 10:26:56 GMT
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Hey guys,

Let us know if this is the sort of material you are interested in?

Slight variations on what is already available?

Or would you prefer something totally different?

Subject: Re: Materials
Posted by phildlight on Thu, 28 Jul 2011 10:42:04 GMT
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I'm not interested in this material, but I would like to see you guys offer Objet Connex service.

I don't know how you would go about allowing users to assign the different materials to the different objects in the build but being able to offer multiple materials in a single build would be attractive to a lot of people I would think.

for example:

Subject: Re: Materials
Posted by duann on Thu, 28 Jul 2011 10:57:34 GMT
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The Black, White and transparent detail we offer are all Objet materials.

We do not currently offer multi-material, as you mentioned the specification would be quite complex with the current file types.

Perhaps once AMF is adopted as a file option this would be easier to implement?

It is VERY cool technology.

Subject: Re: Materials
Posted by phildlight on Thu, 28 Jul 2011 11:03:25 GMT
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Yep, AMF will be the answer once more apps support it. I imagine it will play nice with a web based service too since it's essentially xml based.

The imaterialise gray is the Somos Protogen material no?

Subject: Re: Materials
Posted by mctrivia on Thu, 28 Jul 2011 11:05:44 GMT
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multi material print could be easily described using multiple stl files zipped together and named by colour you want.

black 01.stl
red 01.stl
white01.stl

most cad software has the ability to make a model out of multiple files. And for models that already exist you can do boolions on a final product to take chunks out of the model to create the seperate parts.

Subject: Re: Materials
Posted by aeron203 on Thu, 28 Jul 2011 15:23:06 GMT

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Having separate STL's for the materials is the current multi-material solution, but I don't like it at all because it prevents me from taking full advantage of the technology. It is also deceptive that they say 14 materials in a build. It's actually two, with different blending levels. Unfortunately you would need a different STL for each of the 14 materials if you wanted to make a gradient. If there were three material cartridges you might need around 200 STL files! Also, imagine the case where you want to make a skin of soft material over a hard shell. You have to make an STL with a wall thickness of a fraction of a mm on top of another one, perfectly smooth with no gaps. On a complicated shape you would quickly have millions of polygons.

Even when AMF is adopted we will still need the Objet machines to carry more than two materials, or else a separate machine would be needed for every combination to avoid the time, labor and waste involved in a material cartridge change. Why are they using those little cartridges, anyway?

There's a lot of work to be done, but man that action figure looks cool.

Subject: Re: Materials
Posted by LeftySpinhand on Thu, 28 Jul 2011 15:29:27 GMT
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if your software handles booleans well...
Grrr. Blender 2.49... Bad Booleans! Bad, Bad Booleans!

Go to your room.

All I materialize materials are SLA. which means NO INTERLOCKS! that's my big reason for staying away...

That Prime Grey Is gorgeous, but that's gotta be enhanced by attentive nesting by the planner... poor rotation placement would REALLY ruin a print if you're relying on those smooth surfaces.

Subject: Re: Materials
Posted by LeftySpinhand on Thu, 28 Jul 2011 15:37:44 GMT
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@aeron203
- Objet used and defined the phrase "Digital Material" Liberally enough to make me comfortable

with the context, but that's IMHO.

Oh, and the cartridge method is an artifact from the IBM XEROX days of business. It's more about generating a sustaining income from a large "one-time" sale.

The cartridge system means : proprietary material delivery
plus
modular design for "families" of products i.e. connex, eden, etc
plus
customer extension thru reorded.

It's old and predatory, but unfortunately it works in the american business enviroment, so it'll be tough to beat.

Subject: Re: 3D printing companies
Posted by Youknowwho4eva on Thu, 28 Jul 2011 15:44:37 GMT
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Because of the FUD delay, I had to find an alternative source recently. There's a guy in PA that has helped us with every rush order lately. Small and personal business, unlike the other ones where you send them your files and wait hoping they got them and will come back with a quote. I usually chat with him on google chat, when I'm about to order, when I send him the files to be sure he can use them, and when they are shipping/shipped to see when I'm getting them. And the prices aren't terrible, still 2-5 times for the items I needed. http://www.printo3d.com/

Subject: Re: 3D printing companies
Posted by phildlight on Thu, 28 Jul 2011 16:02:21 GMT
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Youknowwho4eva wrote on Thu, 28 July 2011 15:44Because of the FUD delay, I had to find an alternative source recently. There's a guy in PA that has helped us with every rush order lately. Small and personal business, unlike the other ones where you send them your files and wait hoping they got them and will come back with a quote. I usually chat with him on google chat, when I'm about to order, when I send him the files to be sure he can use them, and when they are shipping/shipped to see when I'm getting them. And the prices aren't terrible, still 2-5 times for the items I needed. http://www.printo3d.com/

What machine(s?) are they using/offer? I'm in PA too but on the other side of the box.

Subject: Re: 3D printing companies
Posted by Youknowwho4eva on Thu, 28 Jul 2011 16:47:40 GMT
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phildlight wrote on Thu, 28 July 2011 16:02

What machine(s?) are they using/offer? I'm in PA too but on the other side of the box.

He uses Dimension printers on site, and outsources many other materials.

Subject: Re: Materials
Posted by AlanHudson on Thu, 28 Jul 2011 19:43:33 GMT
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I'm working on editor tools that allow you to specify a material per-voxel.(think 3D pixels) This would allow for the creation multiple material objects. I still need to wok out how best to export these files to a printer. We don't really have native voxel format to send to the printers. When I have some working prototypes I'll make an announcement.

Subject: Re: 3D printing companies
Posted by Youknowwho4eva on Thu, 28 Jul 2011 19:49:12 GMT
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If you need any sample files, let me know. I wonder what you shirt would print like :p.

Subject: Re: 3D printing companies
Posted by duann on Thu, 28 Jul 2011 21:36:40 GMT
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Multiple materials.

YESSSSSSSSSSSS.

Subject: Re: 3D printing companies
Posted by AlanHudson on Thu, 28 Jul 2011 21:52:10 GMT
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We need to start a discussion with the printer manufactures about how they would like multiple material files specified. Clearly the multiple STL route is not going to work very well. Not certain I really like the STL2 type spec someone sent around it seems more complicated then necessary. Basic question is what formats they will support in their software for the specification of multiple materials. I'll ask around at Siggraph and see if anyone has a good answer.

You could reuse a triangle based format and its material definition. Ie basically provide a mapping from 3D visual material to physical material. If the material is RED use rubber, if BLUE use metal etc.

Or you could just add a new PhysicalMaterial node to X3D/VRML/STL etc that would give the material. Still would need to separate out each shell into separate materials but at least it wouldn't be different files.

Subject: Re: 3D printing companies
Posted by phildlight on Thu, 28 Jul 2011 22:04:10 GMT
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http://en.wikipedia.org/wiki/Additive_Manufacturing_File_For mat

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Subject: Re: 3D printing companies
Posted by AlanHudson on Thu, 28 Jul 2011 22:22:50 GMT
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thanks that was the format I reviewed named "stl2".

There are a few things I don't like about it:

The addition of the curved triangles makes it much harder to implement. Its a feature I haven't seen in any other fileformats and feel unnecessary. Having to implement that will slow its adoption.

Having textures being only inline instead of being able to reference an external file/url is annoying. Basically we'd have to convert all textures provided with the content into this bloated form. Why not just use .zip packaging with local references.

Formulas are kinda cool pixel/vertex shader type functionality. But again its overly complex for what I feel is needed. If shaders are desired why not use a standard already like GLSL that it accelerated by 3D hardware for viewing. As it stands if this language doesn't map well to shader operations in both OpenGL and DirectX then it won't render well at all for 3D viewers.

If those features where removed or profiled to a higher support level then I could see implementing it.

Subject: Re: 3D printing companies
Posted by psychofox on Thu, 28 Jul 2011 22:51:58 GMT
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I have to say I've signed up with other similar companies, but their websites are never as simple and reliable as shapeways, so I rarely use them. The upload and viewing is quick and informative. As long as they get this backlog in order, I can't see me needing to use anybody else in future.

Subject: Re: 3D printing companies
Posted by henryseg on Fri, 29 Jul 2011 07:25:32 GMT
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Curved triangles was the main thing that had me excited about stl2. Most of the stuff I do is very curvy, and I'm always running up against triangle count limits.

For the future of 3d on the web, something like curved triangles seems very important as well: unless bandwidth increases by large amounts, sitting through download of a 3d file is going to be an annoyance for anyone viewing 3d on the web. With curved triangles, the file sizes can be much much smaller.

Subject: Re: 3D printing companies
Posted by AlanHudson on Fri, 29 Jul 2011 16:12:04 GMT
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My concern is that this concept has not appeared in any 3d fileformats I've seen before. That means it will not be adopted quickly. It might be the best way to handle the problem. But it isn't going to get adopted quickly. I've been through the creation of VRML,X3D and COLLADA so I've familiar with the adoption curves. The easier a format is the faster and more adoption rate it gets. There is a reason that STL is popular for 3D printing, its dead simple to implement.

I expect that we can get triangle counts up reasonably quickly. Or we may goto a voxel(3D pixel) format. As we get closer to one triangle per voxel it will be cheaper to just deal with voxels.

How many triangles are your models coming out right now and what modeling package do you use?

Subject: Re: 3D printing companies
Posted by mctrivia on Fri, 29 Jul 2011 19:03:55 GMT
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i agree. stl is nice. It is so simple I have writen my own software to read, write and manipulate the files.

Subject: Re: 3D printing companies
Posted by AlanHudson on Fri, 29 Jul 2011 19:40:20 GMT
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It is a tradeoff. Because STL doesn't support an indexing mode the files are larger then they need to be. But then again they just work which is nice.

Subject: Re: 3D printing companies
Posted by mctrivia on Fri, 29 Jul 2011 19:58:01 GMT
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Just indexing would cut down to 10 to 40% of current file size. For this reason I index all files while loading into ram. Drastically cuts down ram usage a well as the number of points I need to alter per transform. A stl 1.5 with this feature would be nice.

Subject: Re: 3D printing companies
Posted by AlanHudson on Fri, 29 Jul 2011 20:13:04 GMT
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Internally we use the X3D file format. We use the Interchange profile which is a very small slice of the specification made for geometry interchange. Still more to implement then STL but since I wrote part of that spec I'm more familiar with it.

We do the same operation, we index the incoming STL to reduce memory and processing time.

Subject: Re: 3D printing companies
Posted by 7777773 on Sat, 30 Jul 2011 05:25:53 GMT
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I'd like to see an improvement in Steel wall thickness allowance... iMaterialise is better in this area, but Shapeways has a far better web presence and model selection.

Specifically, my most recent co-creator idea would be something like http://shpws.me/2LqA - but at the moment Silver is a bit overkill for a vanity house key.

Oh well, the technology is improving every day. We'll get there soon enough!

Subject: Re: 3D printing companies
Posted by reddevil7777 on Tue, 16 Aug 2011 08:27:49 GMT
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Earlier in the thread there was a request about I Materialise Prime Grey, here's a pic of something done in it.

Very happy with it, for the models I want it seems an ideal material, I hope Shapeways consider something similar.

File Attachments
1) blogentry-7067-0-49993000-1313075566_thumb.jpg, downloaded 1005 times

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Subject: Re: 3D printing companies
Posted by woody64 on Sun, 19 Aug 2012 09:10:35 GMT
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... this discussion is rather old but recently I 've made a test in Prime Gray and the result is very astonishing:

- looks very smooth

- the grey is a very helpfull color (at least for my items)
- in macro you see the steps but in reality only from a very very short distance

On the picture it looks the first time like a material which can be used without further coloring.

Link to larger view:
http://www.flickr.com/photos/34336019@N07/7765540768/sizes/l /in/photostream/

The steps are to 98% only visible in this macro view.

(The black detailed material always has the problem that you see some small white corns on it, which are very visible on each photo)

Woody64

Subject: Re: 3D printing companies
Posted by Bunrattypark on Sun, 19 Aug 2012 09:24:05 GMT
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Some time ago I asked Shapeways if they were considering this Prime Grey material and they said Yes.

There has been nothing since.

Any word from Shapeways if they are seriously considering this very useful material, or should we go elsewhere?

Subject: Re: 3D printing companies
Posted by woody64 on Sun, 19 Aug 2012 09:42:59 GMT
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I would be very interested in since for 90% of my items grey would be very usefull as base color.
Also the look on photos and the look in reality is very convincing.
Woody64

Subject: Re: 3D printing companies
Posted by Strangefate on Wed, 17 Apr 2013 02:51:27 GMT
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Sorry to resurrect an old threat, but after printing some things here and ordering sample kits from imaterilise and shapeways, I too would love to have something comparable to prime gray.

The color itself isn't much of an issue but the surface finish and strength feels very nice (and so does the price).

Only WSF seems to be relatively strong and flexible as the name says but the surface is rather rough, even when polished. FUD is nice but too brittle.

Something that feels more 'toyetic', closer to standard plastic toy quality (like prime gray) would be really awesome.

Subject: Re: 3D printing companies
Posted by PeregrineStudios on Fri, 19 Apr 2013 03:11:50 GMT
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Shapeways is definitely the best I've across. i.Materialise is good at what they do - they're the only company I would see as legitimate competition to Shapeways - but their prices for comparable models are double or more what I pay here on Shapeways, and their seller interface is so unintuitive I gave up trying to work with it. The one place i.Materialise definitely has the upper hand - and I wish Shapeways would take them on in this regard - is material selection. Gold, Brass, Prime Gray, and Detail Stainless Steel? Me WANT. But I just can't justify it at their prices.

Subject: Re: 3D printing companies
Posted by lensman on Fri, 19 Apr 2013 16:19:35 GMT
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Well, since this thread has been resurrected there is another point that I like about that company: Once you have uploaded a model it is VERY easy to simply type in a larger or smaller scale and INSTANTLY your model is updated and re-priced. I absolutely HATE having to re-upload a different sized model to Shapeways just to see what the price will be. And, YES, I KNOW I could figure it out with a calculator based on volume, but really do I want to do that with every material, AND have to make sure I don't forget minimum fees, etc.... This is something that I would love to see Shapeways address.

Subject: Re: 3D printing companies
Posted by Strangefate on Sat, 20 Apr 2013 01:50:03 GMT
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Yes, the scale feature on imaterilaise seemed really convenient. I guess everytime you change the scale you'd have to wait for the website to test it's printability, but it would be an awesome feature, very useful for rings, some miniatures etc.

To come back to the materials issue... WSF has some great properties but is so 'rapid prototype' era, I think I'm personally ready for something with a decent finish that doesn't break if I look at it for too long.

Other than that, I do love shapeways, they seem like an overall friendlier folk and their website is easy to navigate.

Subject: Re: 3D printing companies
Posted by lensman on Sat, 20 Apr 2013 03:04:14 GMT
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I would agree with that last statement. Customer Service is second to none in ANY online company I have dealt with.

Subject: Re: 3D printing companies
Posted by leo rolph on Tue, 30 Apr 2013 10:43:01 GMT
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In Australia we have few options but i recently found a great little 3d printing company just called Rapid Prototyping Services. the turnaround for silver and gold is just a couple of days, they dont remove sprues but the quality is amazing. also they price per gram of sterling silver and gold.

here is a sample image of a silver print i had done, needed for quick turnaround, the height of the band is 2.5 mm.

File Attachments

1) IMG_3392.jpg, downloaded 52 times