

AGENDA

19.00 - 19.20:

Walk-in, network, drinks & snacks

19.20- 20.00:

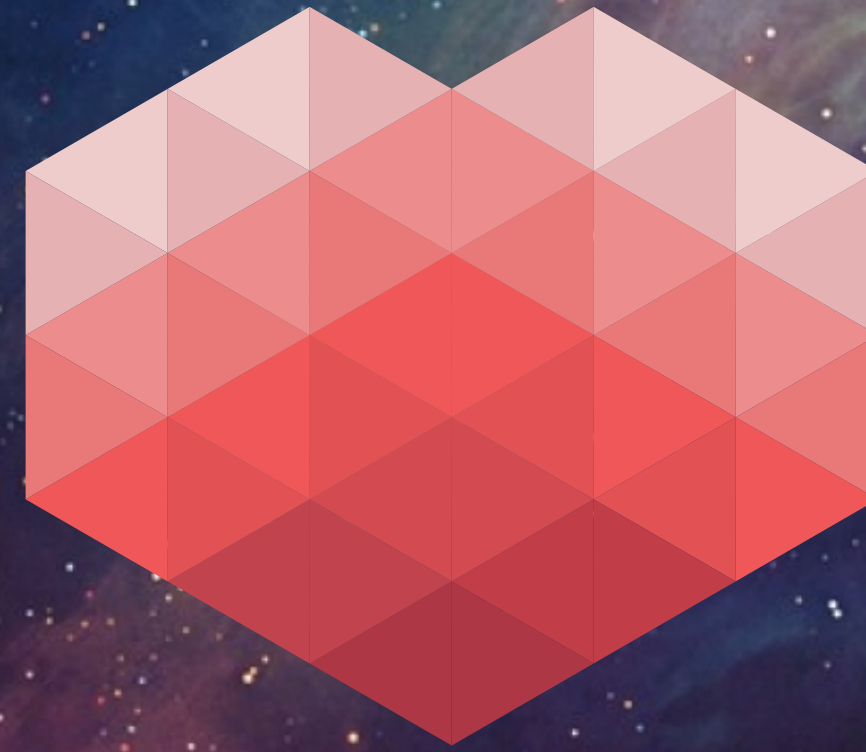
Presentation Workshop

20.00 - 20.30:

Discuss, drinks & snacks



THE WORLD'S LARGEST 3D PRINT NETWORK



3D HUBS

“3D Hubs tapped into a market that needed tapping”

Forbes

“3D printing on demand is now locally available”

FAST COMPANY

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3D HUBS





>15.000 PRINTING LOCATIONS IN 150 COUNTRIES

maps.3dhubs.com

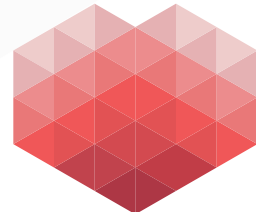


DIGITAL DISTRIBUTION

3D printers enable digital distribution of physical products.
After music, books and movies we can now do the same for consumer products.

 Over 1 Million Books

 Spotify® Over 20 Million songs

 3D HUBS Can print over 1 Million designs

FIRST 3D PRINTING STEPS OF LARGER CONSUMER BRANDS



Disney



NOKIA



LEGO



Talk



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MODERATE 3

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1

Lost-wax casting on Formlabs Resin

▼

Hello fellow Hubs, I have a customer who wants to use Lost-Wax Casting on a ring, printed with a Form1+. Can the Formlabs resin (or resin in general) take this? Is it advisable? Thanks! Filemon



Filemon

5 hours ago

10 comments (1 new)[/Formlabs](#)[/Resin](#)[/Form1+](#)[/How To Hub](#)▲
2

transparent filament or?

▼

I wonder if there is a material that is possible to print with, that will be transparent. I am printing with PLA and ABS and all kind of filament. But sometimes I see on the tube transparent products and don't quite understand how it's done...



GN 3DImprimo

6 hours ago

3 comments (2 new)[/Filament](#)[/Linköping](#)

About Talk

Talk is a place to share projects, ask questions, show off prints and announce events. It's all about 3D Printing. We're currently in beta so we would love to [hear](#) your ideas on how we can make it better.

My Tags

[/Ultimaker](#)[/Amsterdam](#)[/Marvin](#)[/London](#)[/Fairphone](#)[/ColorFabb](#)[/3D Hubs Team](#)[/New York](#)[/Formlabs](#)[/Drones](#)[/Maker Tale](#)[/Los Angeles](#)[/San Francisco](#)[/3DRacers](#)[/Event](#)

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▲ 1 Lost-wax casting on Formlabs Resin

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▼ Hello fellow Hubs, I have a customer who wants to use Lost-Wax Casting on a ring, printed with a Form1+. Can the Formlabs resin (or resin in general) take this? Is it advisable? Thanks! Filemon



Filemon

5 hours ago

10 comments (1 new)

[/Formlabs](#)[/Resin](#)[/Form1+](#)[/How To Hub](#)

▲ 2 How many prints to hubs get on average?

2

▼ How many prints to hubs get on average per day or hour?



georgeh1ll

1 day ago

5 comments

[/How To Hub](#)

How To Hub Talk

9 followers [UNFOLLOW /HOW TO HUB](#)

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Drones Talk

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13



3D Printed drone build

For some time now I have wanted to 3D Print a quadcopter. So I have started and wanted to share the project with you guys. Maybe some of you are in the same situation, Maybe you

Copenhagen 7 days ago 5 comments (1 new)

/Copenhagen /Drones /Maker Tale

8



Voxel8 printing drones?

Just saw this. And I want one now. This is amazing. Read the article here: <https://medium.com/the-letters/3d-printed-drones-are-finally-here-c76811...> Would any of

Copenhagen a month ago 7 comments /Drones /Voxel8

Drones Talk

17 followers BC GS

UNFOLLOW /DRONES

About Drones

Drones are aircrafts controlled by pilots from the ground.

Quadcopters, Helicopters, and other hobby drones fall into this category.

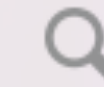
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- /Amsterdam
- /Marvin
- /London
- /Fairphone
- /ColorFabb
- /3D Hubs Team

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Ultimaker Sample Issues: Nut & Bolt

Ok, so something that earlier I got to work without any problem, suddenly I can't get done. I'm trying to print a smooth Nut & Bolt print on my Ultimaker 2 for a customer and these are my



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3D Hubs NY ColorFabb Workshop

Hi Hubs, We'd like to invite you to a "3D Hubs Filament Workshop" in New York, organized in collaboration with Colorfabb. During the event we'll be showcasing the new Colorfabb XT-CF20



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FILAMENT WORKSHOP



SPECIAL FILAMENTS

Composite materials / general tips for 3D printing

3D HUBS SAMPLE PACK

SPECIAL PLA's



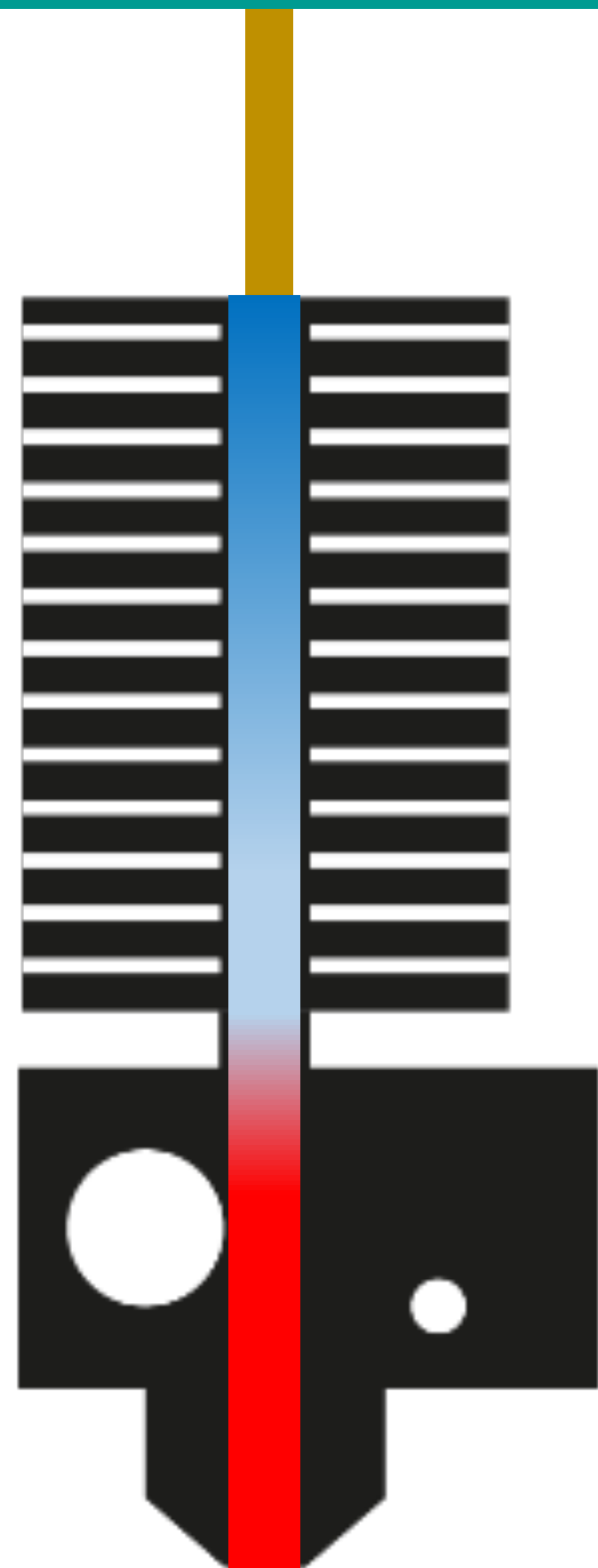
XT's



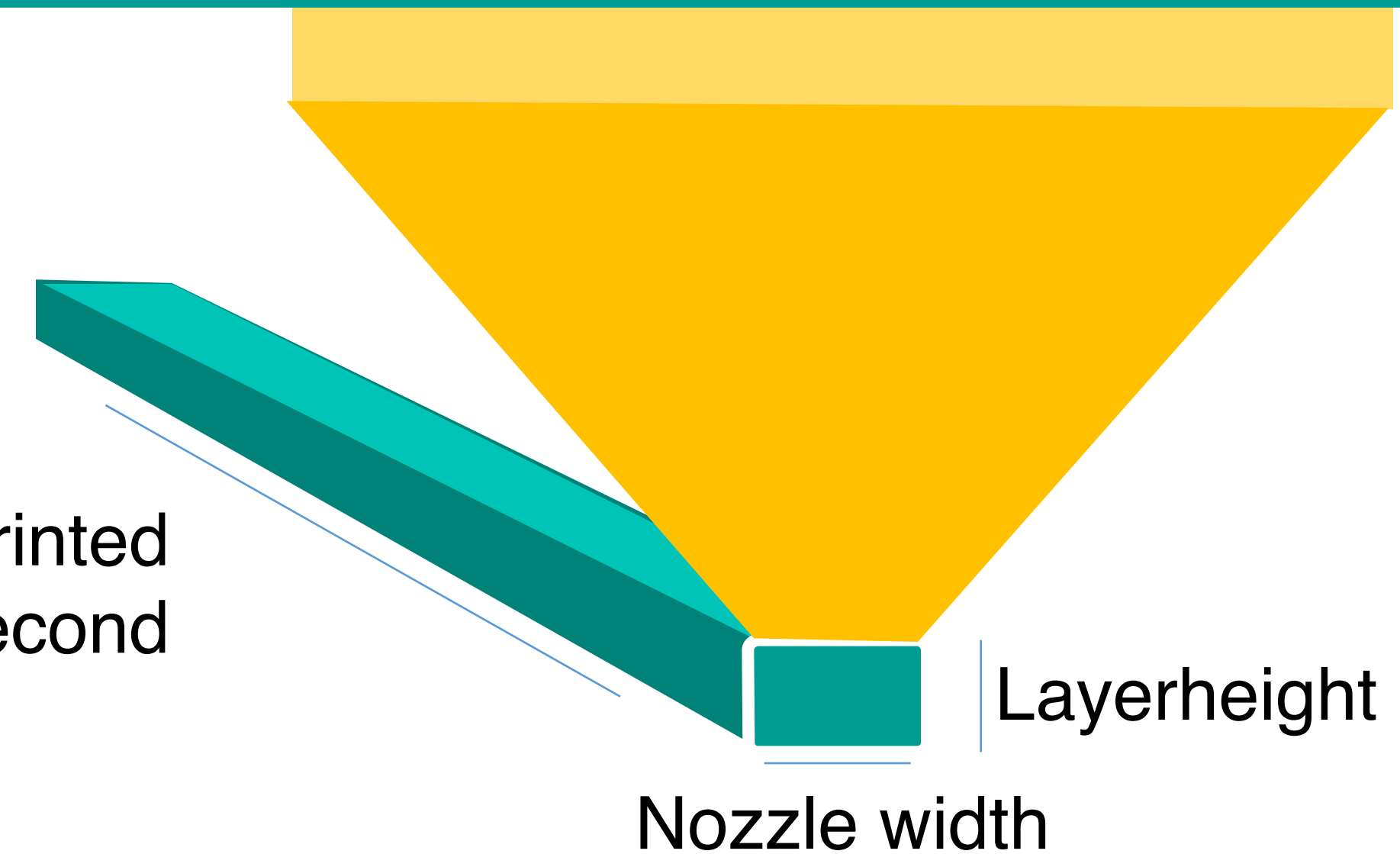
SPECIAL FILAMENTS

Composite materials / general tips for 3D printing

Speed at which the filament is moving through the hot-zone



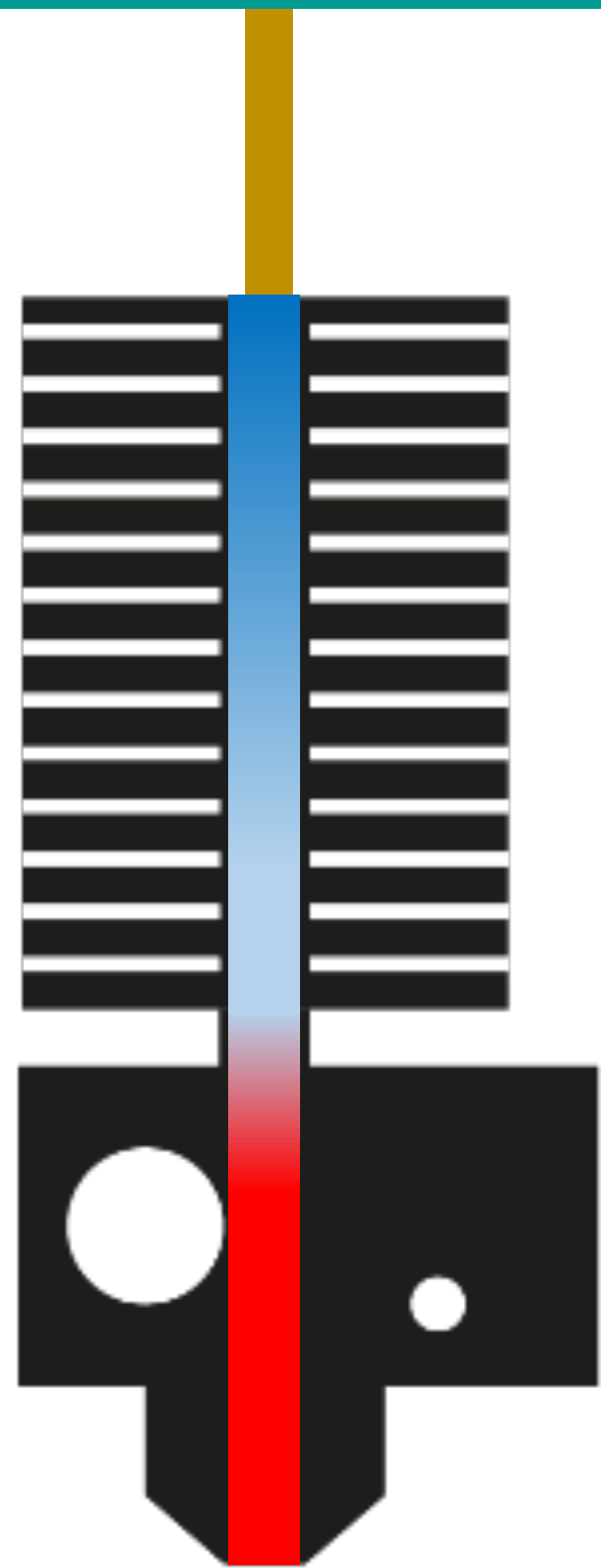
Distance printed
in one second



$$\text{Layerheight} \times \text{nozzle width} \times \text{print speed} = \text{Volume per second}$$

SPECIAL FILAMENTS

Composite materials / general tips for 3D printing



$$0.05\text{mm} \times 0.4\text{mm} \times 50 \text{ mm/s} = 1$$

$$\text{mm}^3 / \text{s}$$

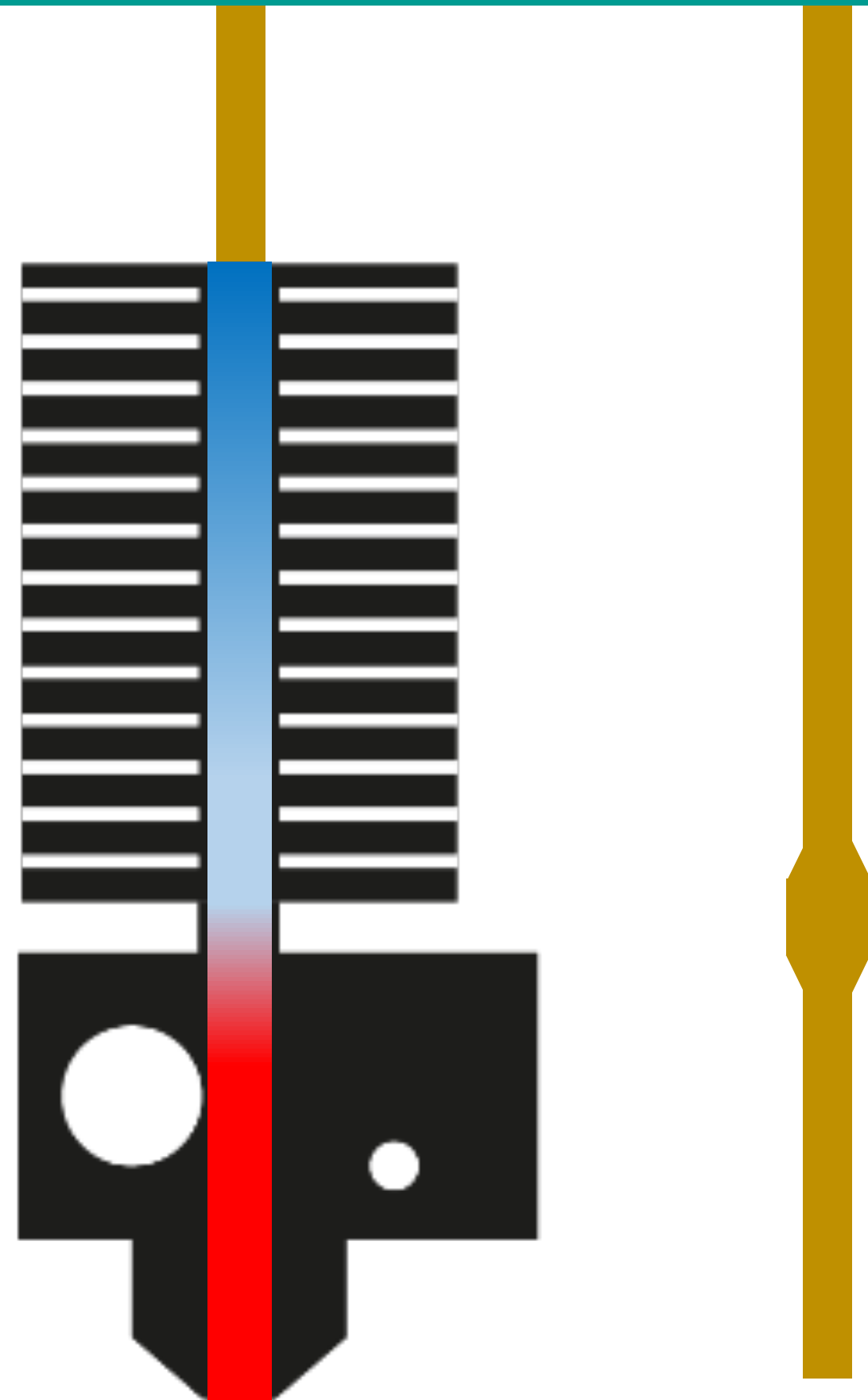
$$0.2\text{mm} \times 0.4\text{mm} \times 100\text{mm/s} = 8 \text{ mm}^3$$

$$/ \text{s}$$

SPECIAL FILAMENTS

Composite materials / general tips for 3D printing

HEAT MOVING UPWARDS IN THE FILAMENT



**Partial or
complete plug**

PLA/PHA BASED FILAMENTS

Composite materials / general tips for 3D printing



DIAL IN SETTINGS FOR

BRONZEFILL, COPPERFILL, BRASSFILL,
BAMBOOFILL, WOODFILL.



Start with layers between
0.2mm and 0.3mm

At regular PLA temperature
and speed for your 3D
printer.

XT BASED FILAMENTS

Composite materials / general tips for 3D printing



XT-copolyester

general tips for 3D printing

It's not PLA and not ABS.



Advised 3d printing temperature:

240-260C

Advised 3d print speed:

40 - 70 mm/s

Advised Heated Bed temperature:

60-70C

XT-copolyester

general tips for 3D printing

Oozing on travel moves



Retraction Settings **Ultimaker 2**

Retraction Speed 45 mm/s

Retraction Distance 4.5 / 6mm

Travel speed 150 / 200 mm/s

Print temperature 240 / 260C

XT-CF20

general tips for 3D printing

It's XT with carbon fiber.



Advised 3d printing temperature:

240-260C

Advised 3d print speed:

40 - 70 mm/s

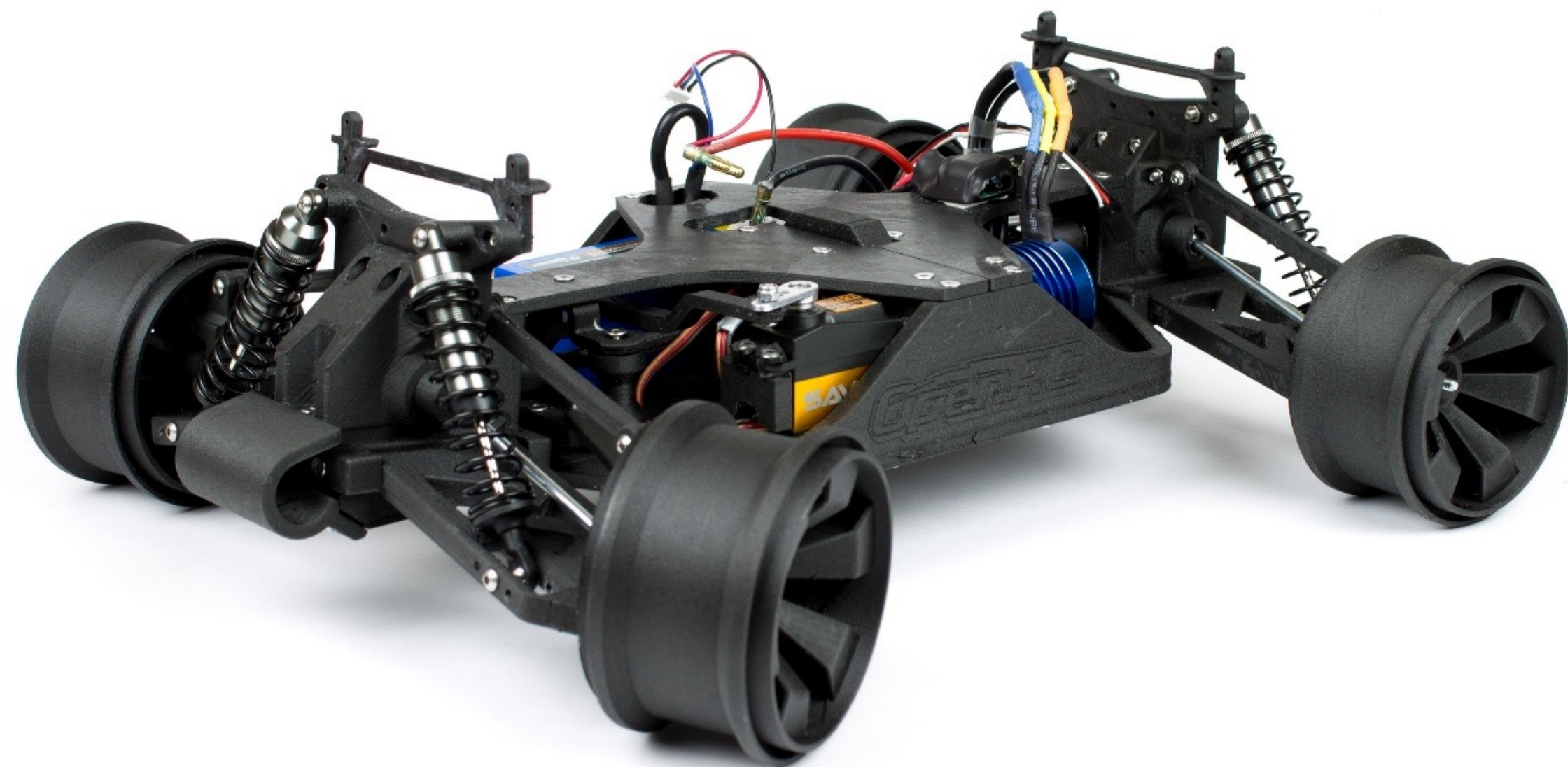
Advised Heated Bed temperature:

60-70C

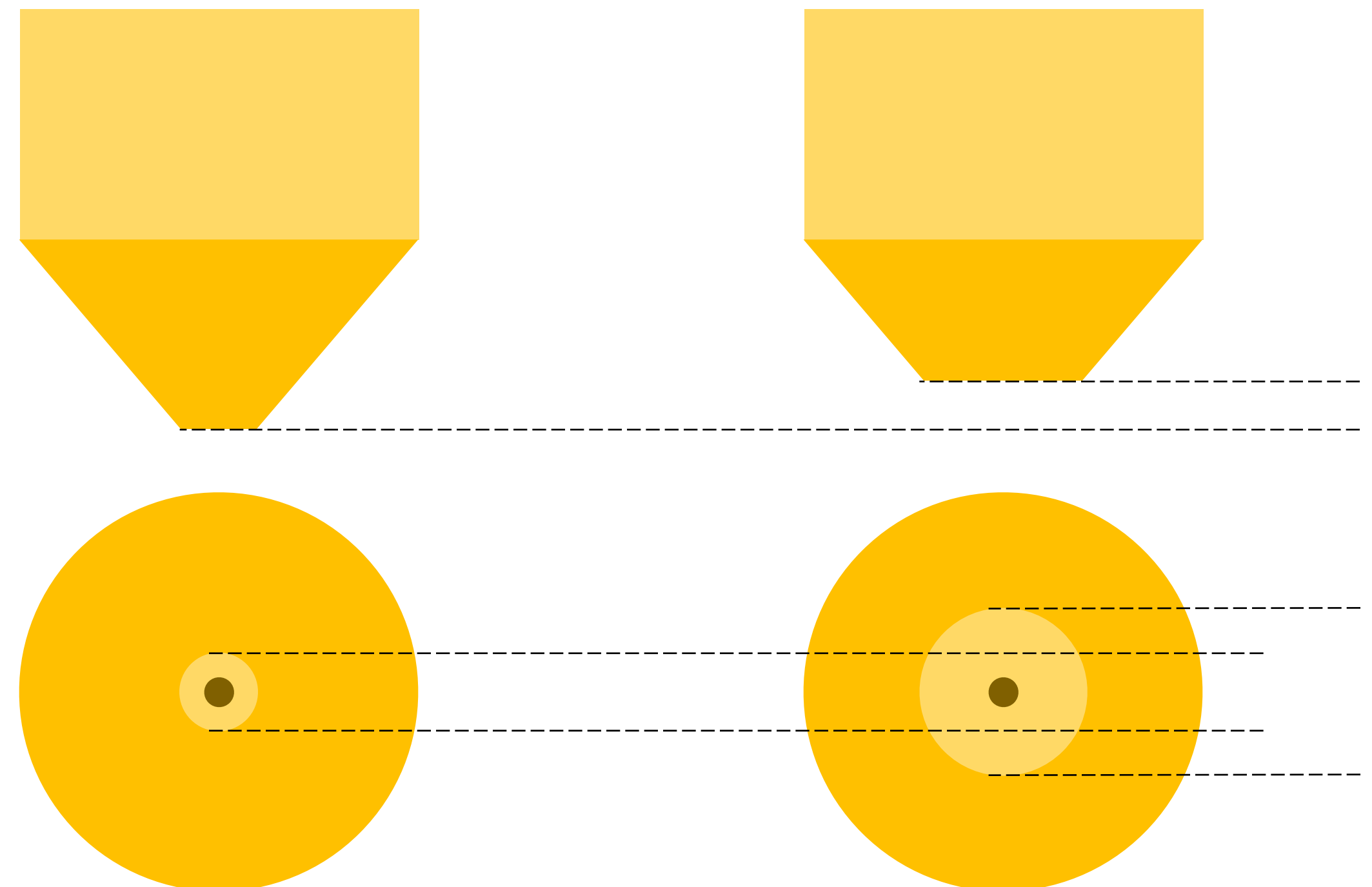
XT-CF20

general tips for 3D printing

Carbon Fiber is abrasive.



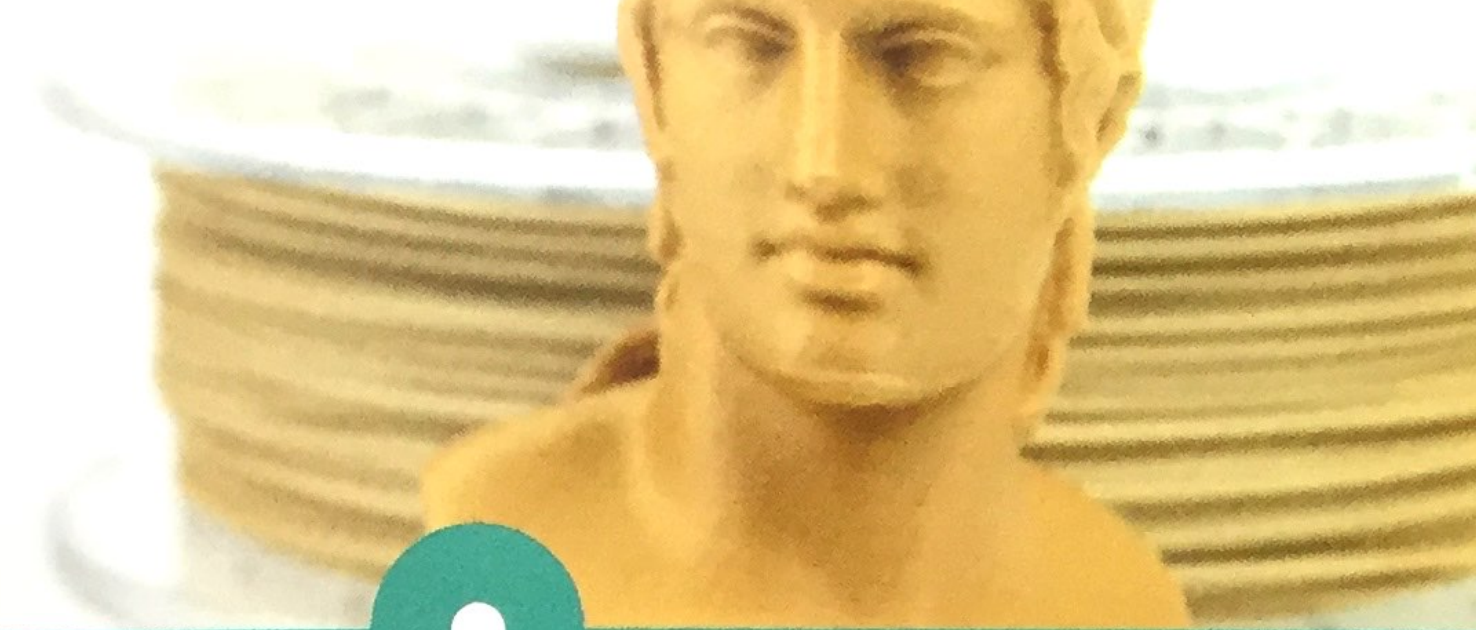
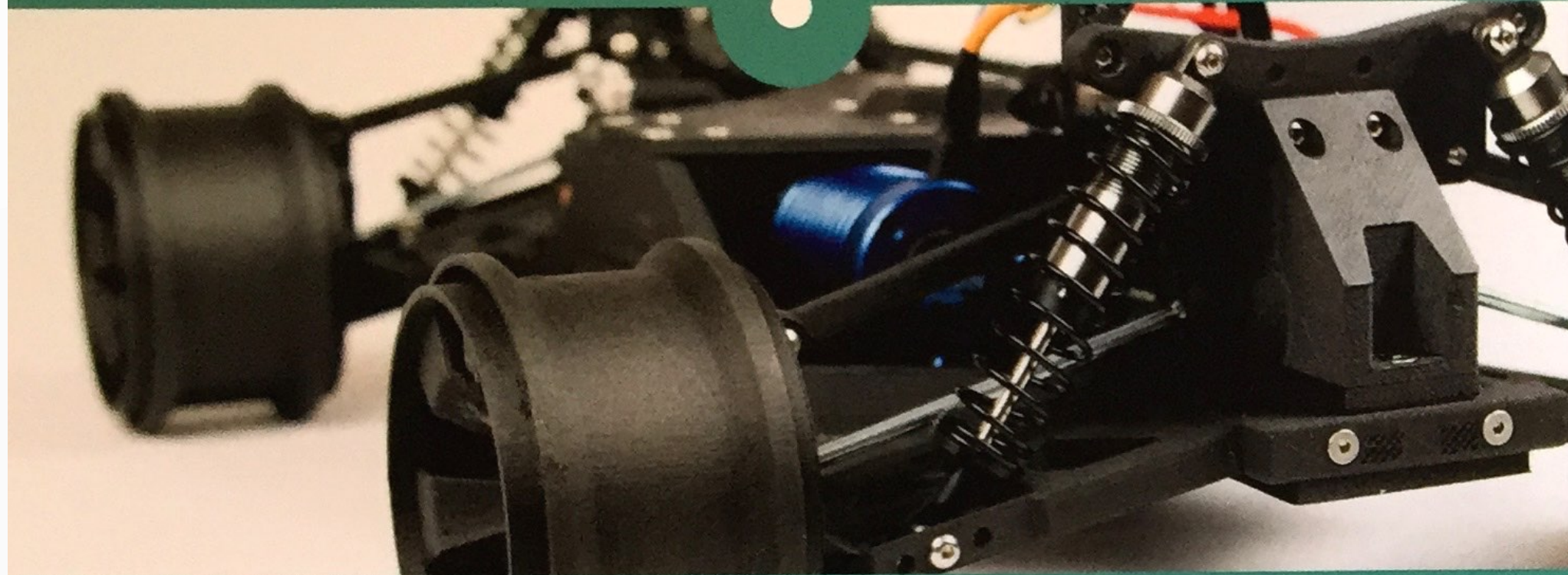
Brass nozzles will wear out while printing XT-CF20



XT-CF20

density **1,35 gram/cc**
flex modulus **6,2 GPa**
glass temperature **80C**

Advised 3d printing temperature:
240-260C*
Advised 3d print speed:
40 - 70 mm/s
Advised Heated bed
60-70C



bambooFill

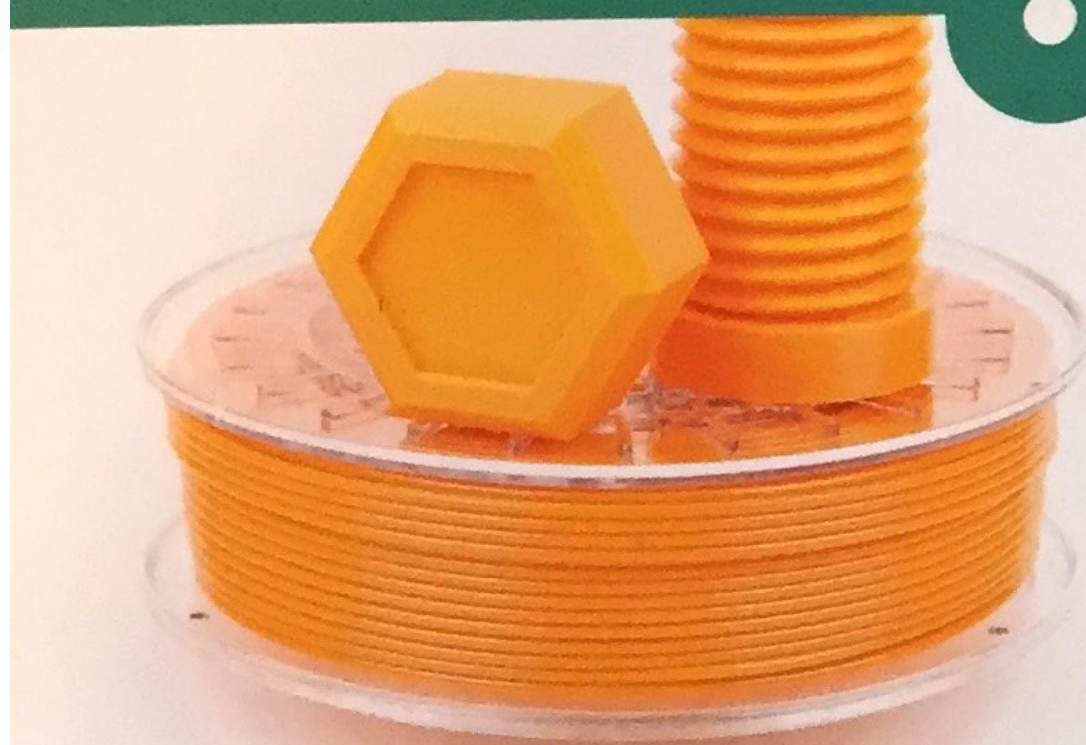
density **1,12 - 1,15 gram/cc**
flex modulus **3,3 GPa**
glass temperature **55C**

Advised 3d printing temperature:
195-220C*
Advised 3d print speed:
40 - 100 mm/s
Advised Heated bed (not mandatory)
50-60C

XT-copolyester

density **1,27 gram/cc**
flex modulus **2,1 GPa**
glass temperature **75C**

Advised 3d printing temperature:
240-260C*
Advised 3d print speed:
40 - 70 mm/s
Advised Heated bed
60-70C



copperFill

density **3,9 gram/cc**
flex modulus **n/a**
glass temperature **55C**

Advised 3d printing temperature:
195-220C*
Advised 3d print speed:
40 - 100 mm/s
Advised Heated bed (not mandatory)
50-60C

bronzeFill example settings

<http://learn.colorfabb.com/print-bronzeFill/>

3d printer	layerheight (mm)	speed (mm/s)	temperature (C)	Build Plate temp (C)	Retraction Distance (mm)	Retraction Speed (mm/s)
Ultimaker Original	0.2	50mm/s	215	n.a.	4.5	45
Ultimaker 2	0.2	50mm/s	220	55 / 60	4.5	25
Makerbot Replicator 2	0.2	90mm/s	200C	n.a.	(standard makerware)	(standard makerware)



copperFill example settings

<http://learn.colorfabb.com/print-copperfill/>

3d printer	layerheight (mm)	speed (mm/s)	temperature (C)	Build Plate temp (C)	Retraction Distance (mm)	Retraction Speed (mm/s)
Ultimaker Original	0.2 / 0.27	50mm/s	200-210	n.a.	4.5	45
Ultimaker 2	0.2 / 0.27	50mm/s	195-210	55 / 60	4.5	25 / 45
Makerbot Replicator 2	0.16 / 0.2	80mm/s	190 - 205	n.a.	(standard makerware)	(standard makerware)



XT example settings

http://learn.colorfabb.com/print-_xt/

Ultimaker 2 – speed and temperature settings

Layerheight (mm)	Speed (mm/s)	Temperature (C)	Build Plate Temperature (C)
0.2	50	240-245	70
0.1	50 - 70	235-240	70

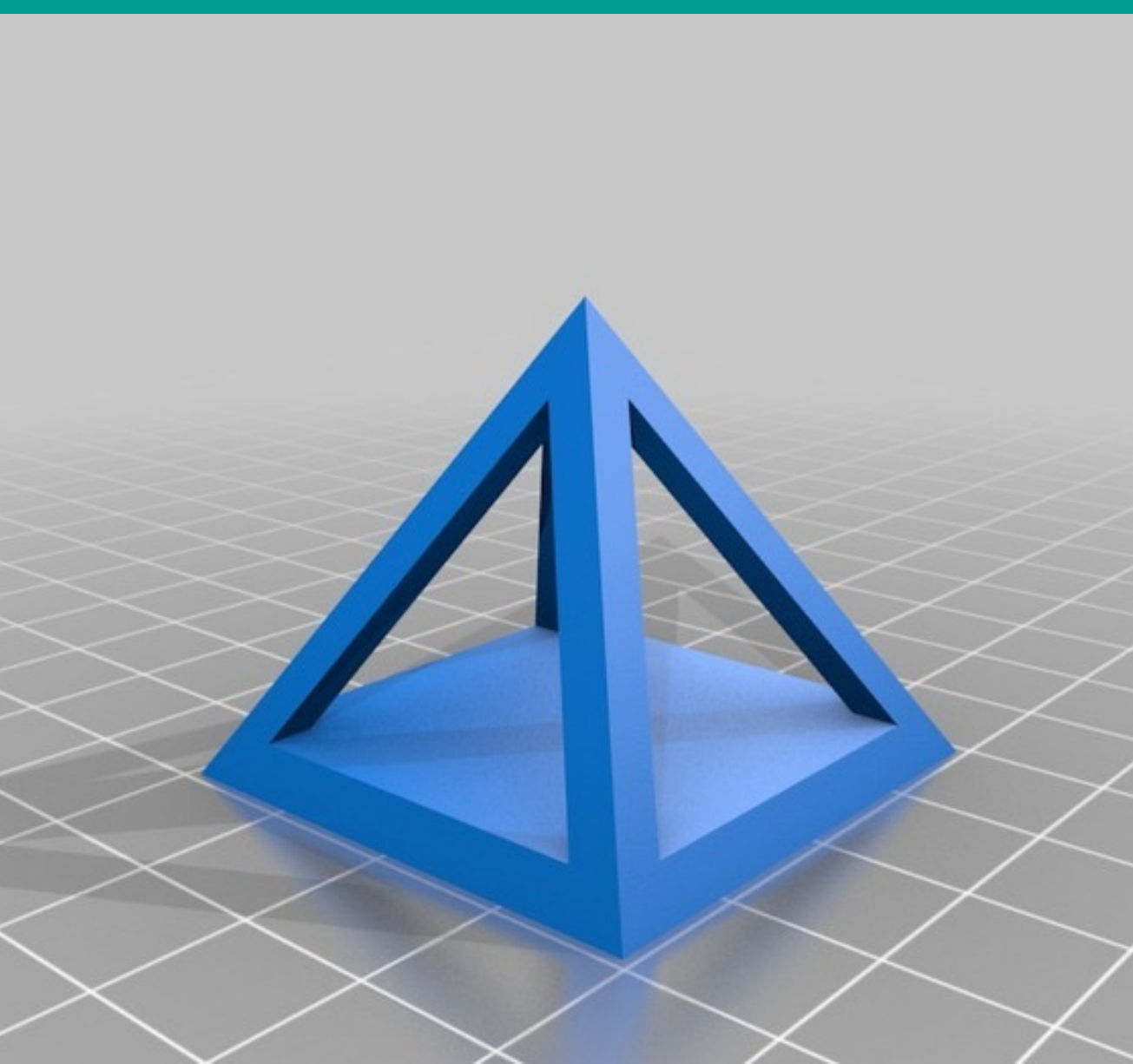
Retraction settings remained unchanged, 40 mm/s speed and 4.5 mm distance.

Ultimaker Original – speed and temperature settings

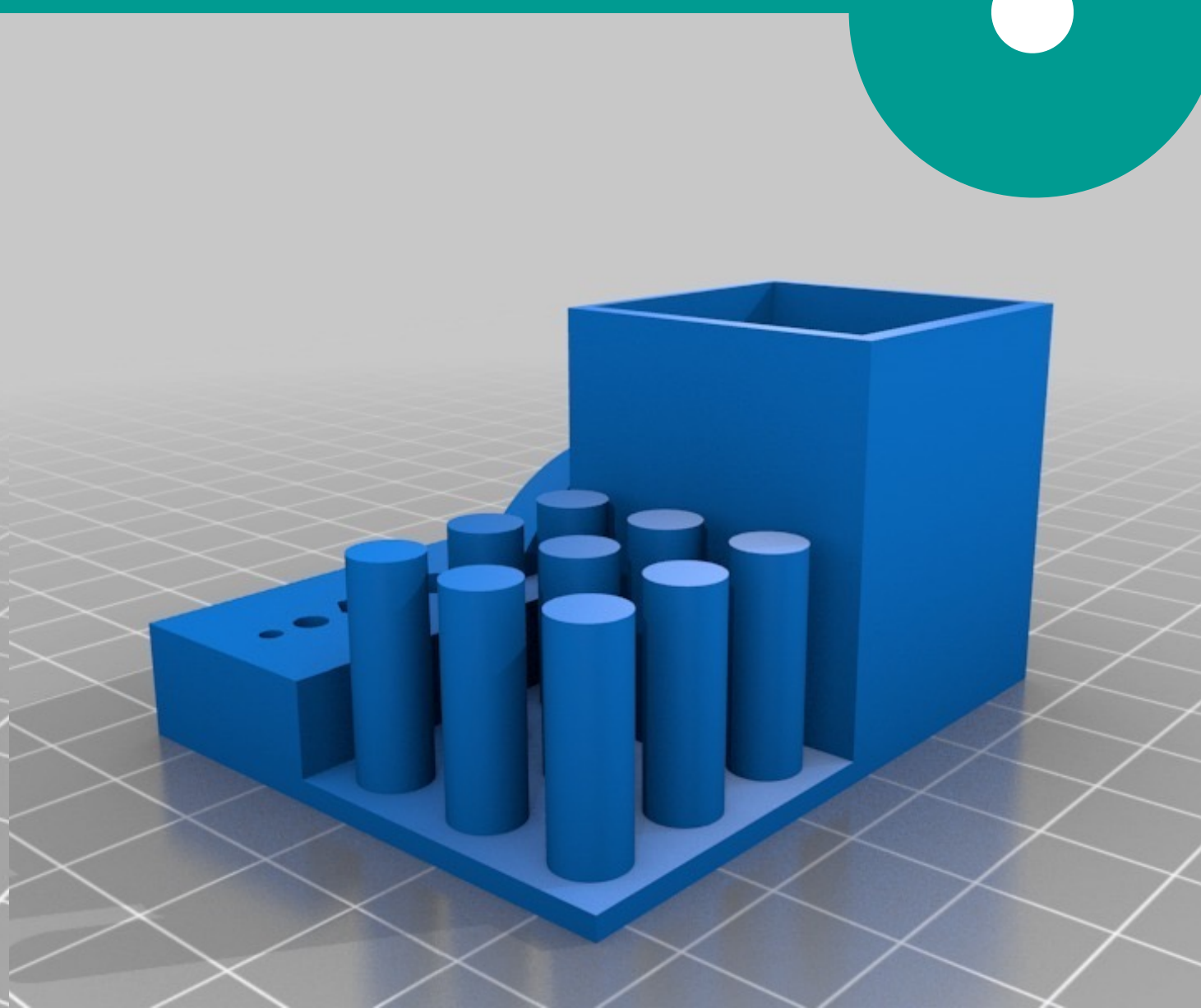
Layerheight (mm)	Speed (mm/s)	Temperature (C)	Cooling
0.2	50	250-255	off for first centimeter
0.1	50 - 70	245-250	off for first centimeter



CALIBRATION MODELS



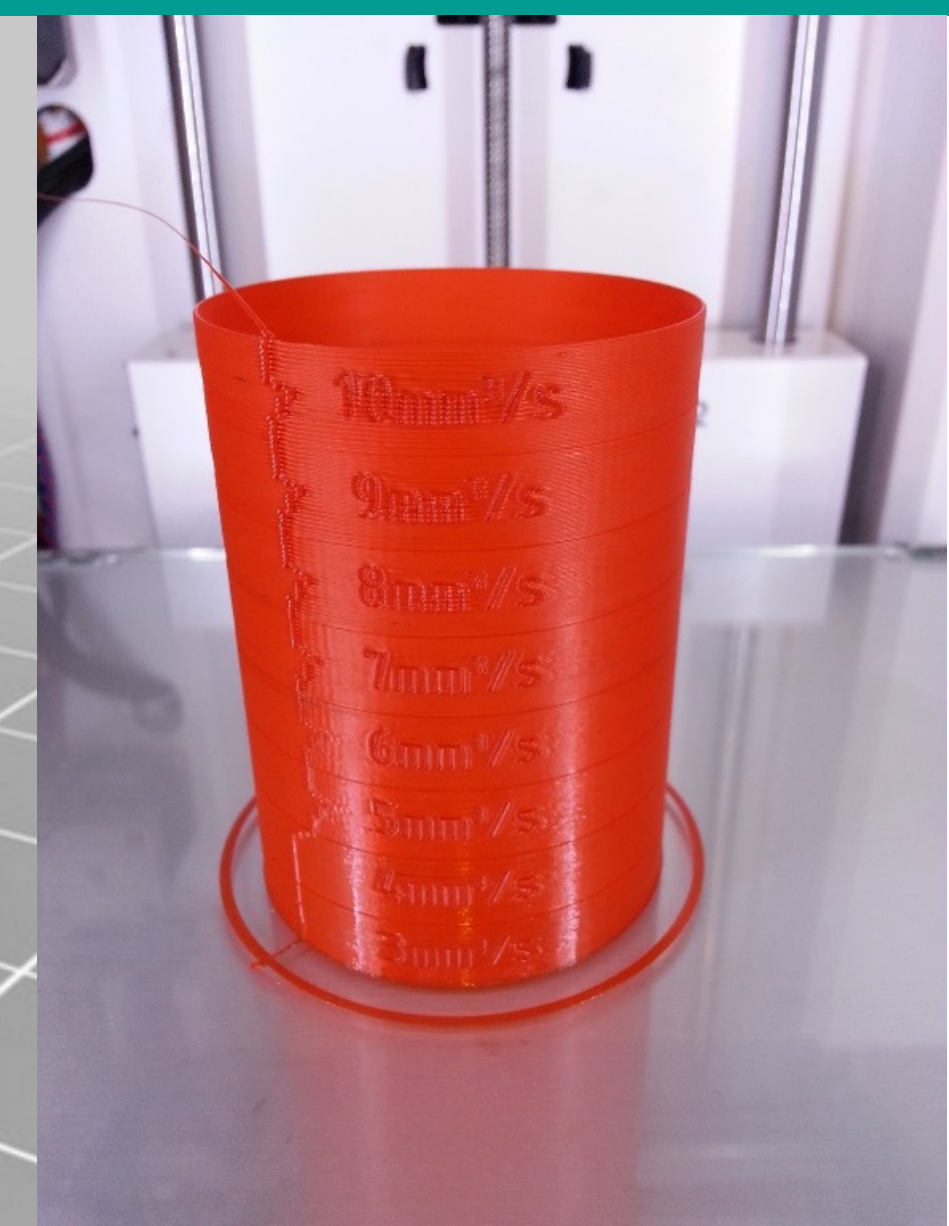
Hollow Pyramid
Retraction settings
thing:11846



Torture Test
Overall test
thing:33902



Marvin Test
Overall test
thing:215703



Flow test
Max volume /
second at
temperature

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copperFill

Oozing and stringing between support and model.

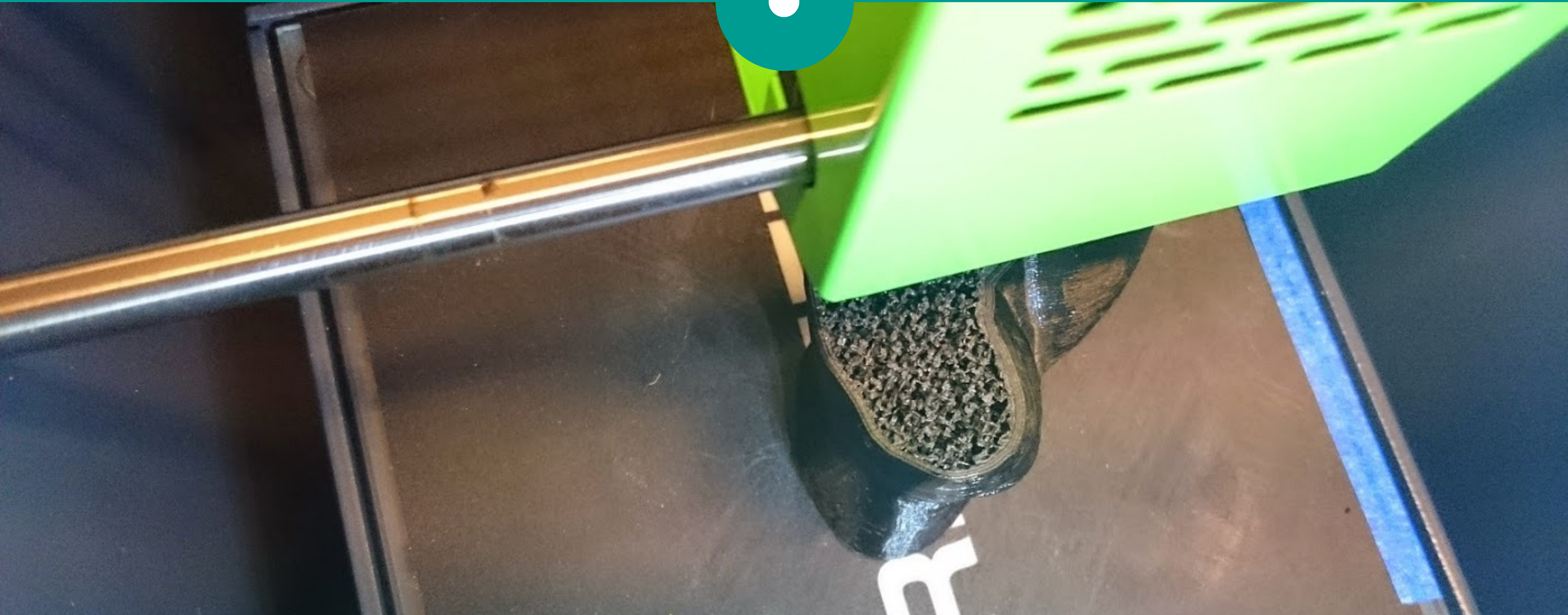
Decrease temperature
Increase retraction



XT-copolyester

Infill is not laying down in consistent extruded lines.

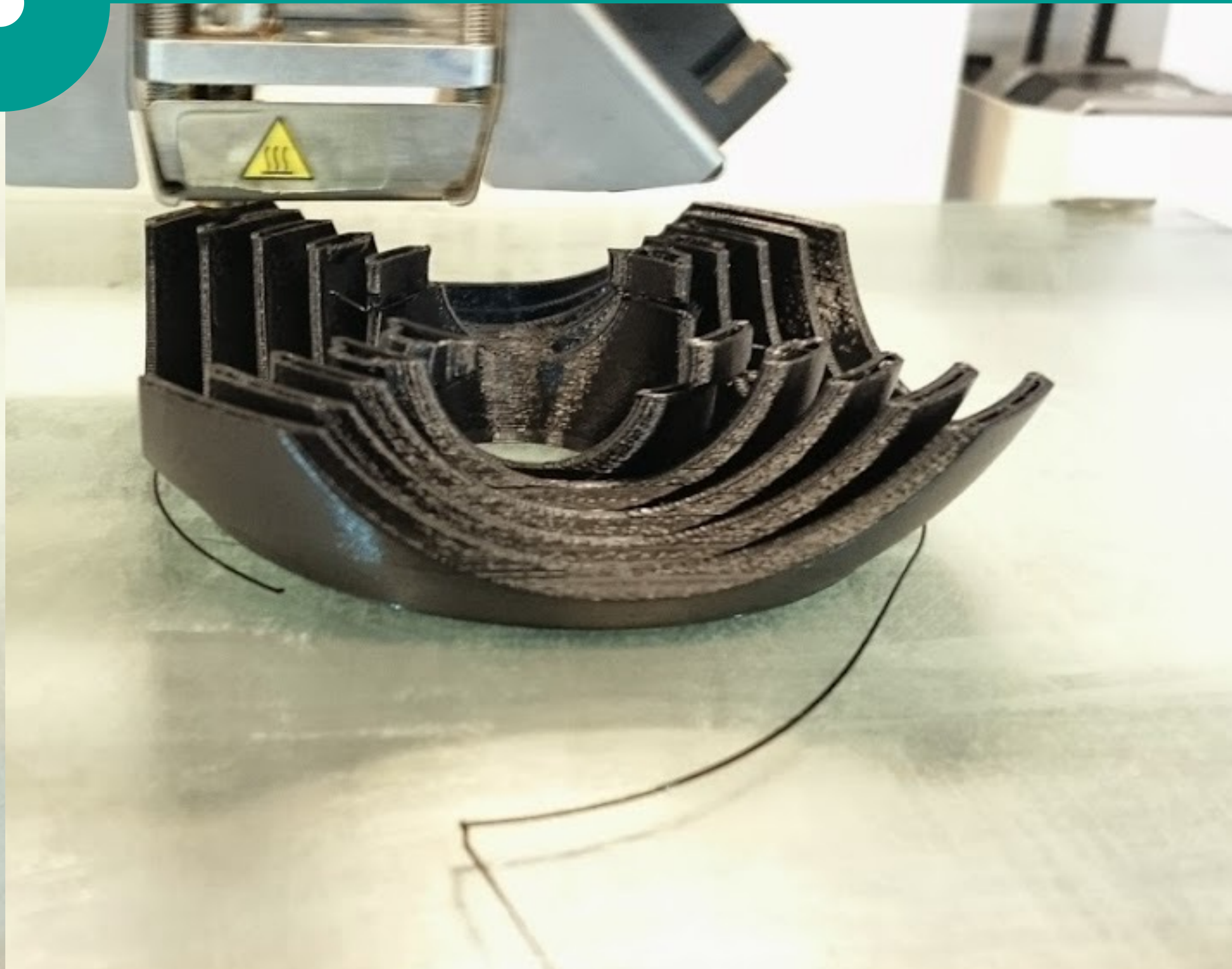
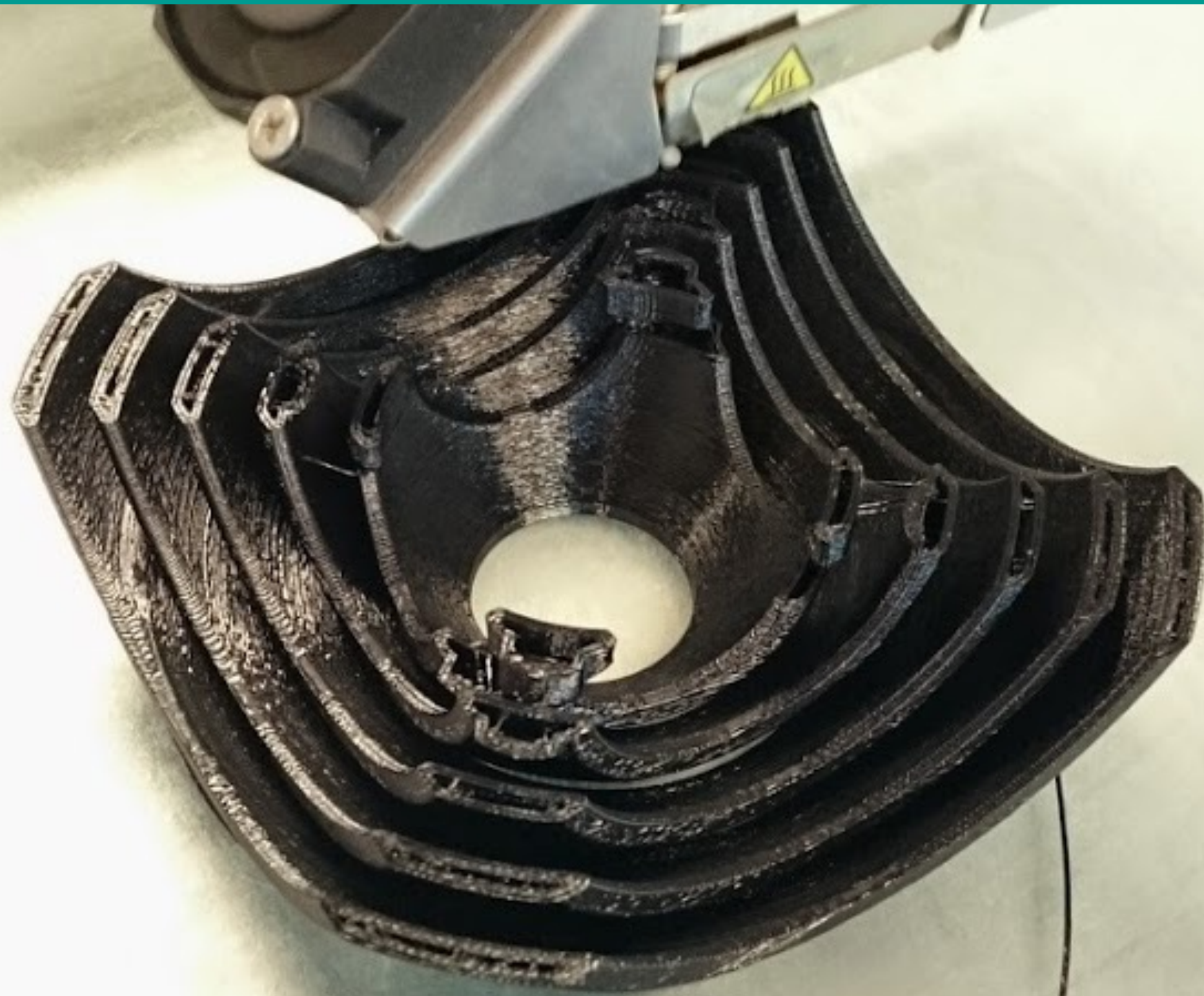
Slower print speed for infill.



XT-copolyester

Model shifted during print, due to warping.

Fresh coating of gluestick.



XT-copolyester

Molten tips due to fast printing and not enough cooling.

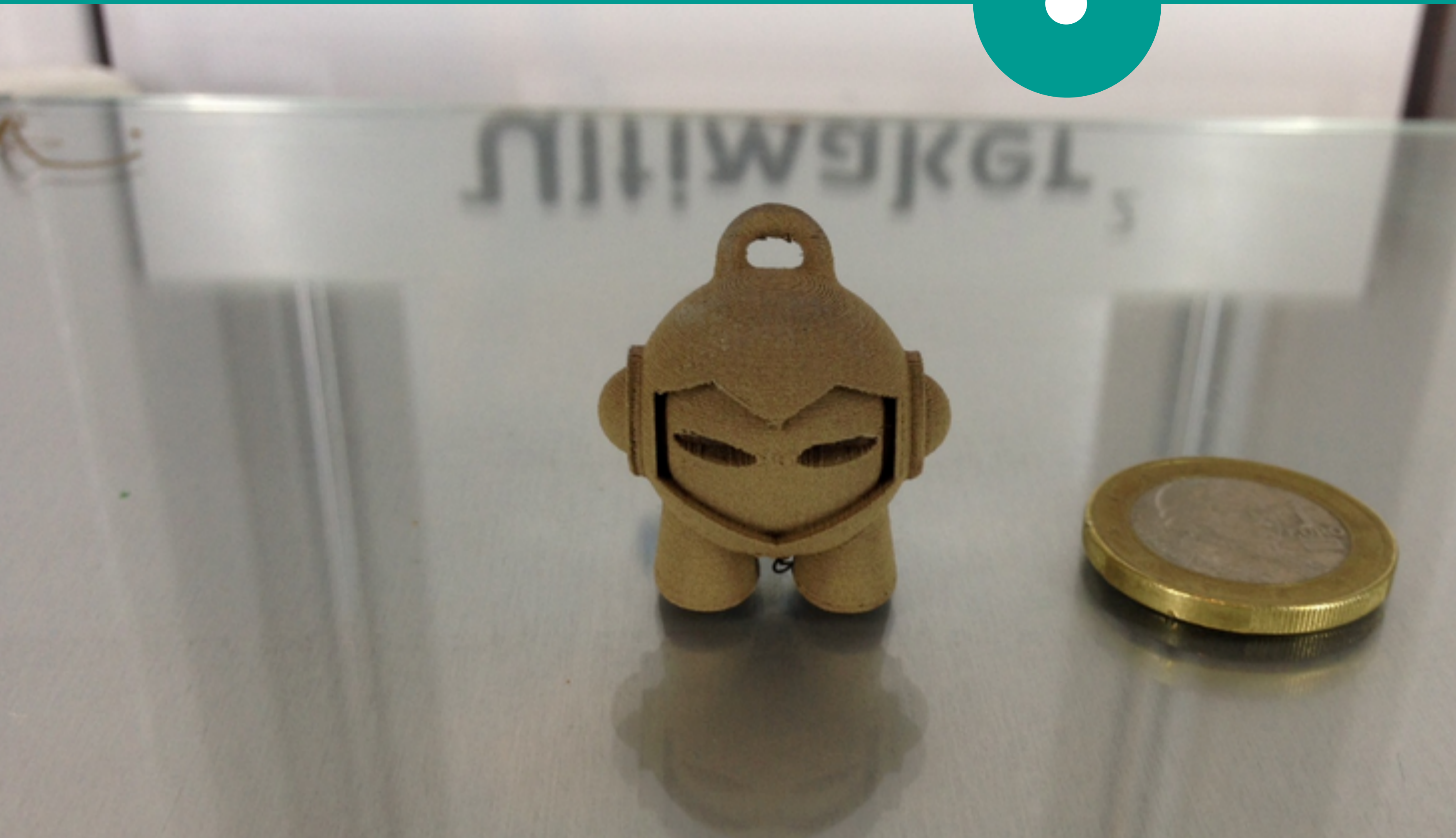
Increase minimal layertime.



bronzeFill

how-to print the perfect Marvin with bronzeFill
<https://www.3dhubs.com/talk/thread/bronzefill-marvin-0>

Best Practices on Talk





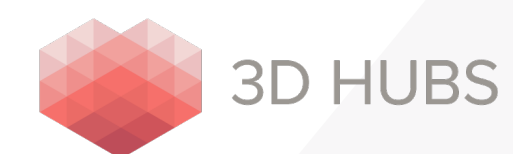
15%

Filament discount

Congratulations, you qualify for a 15% Colorfabb discount! If you would like to use this discount at any time, click the link below.

[LEARN MORE](#)


color**Fabb**
— *fabulous colors* —



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— *fabulous colors* —