

GUIA **MAKER**



DA IMPRESSÃO 3D

Teoria e Prática Consolidadas



versão 0.99

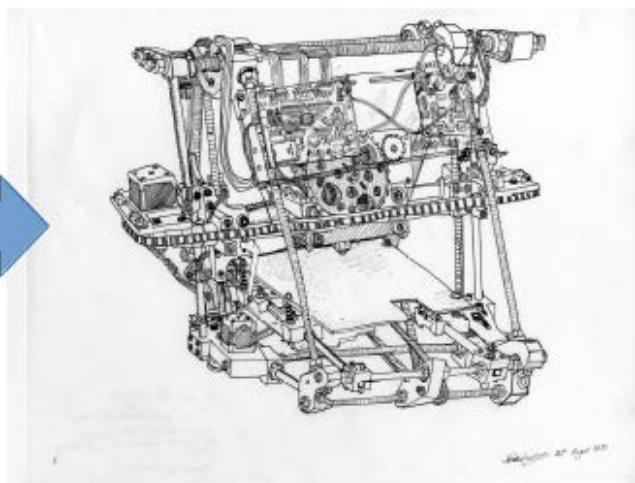
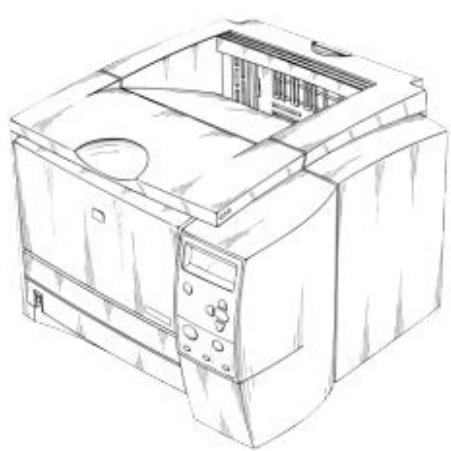
Cláudio Sampaio, MSc.

!

i

i

i





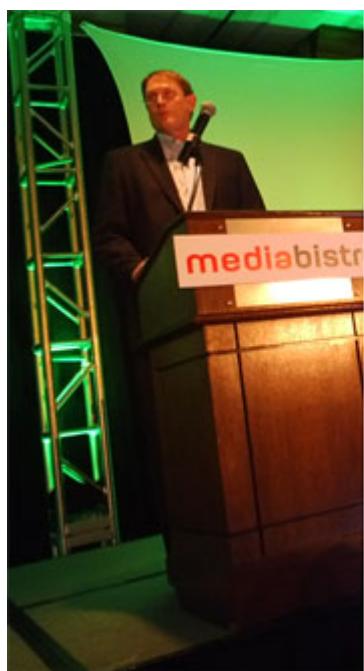
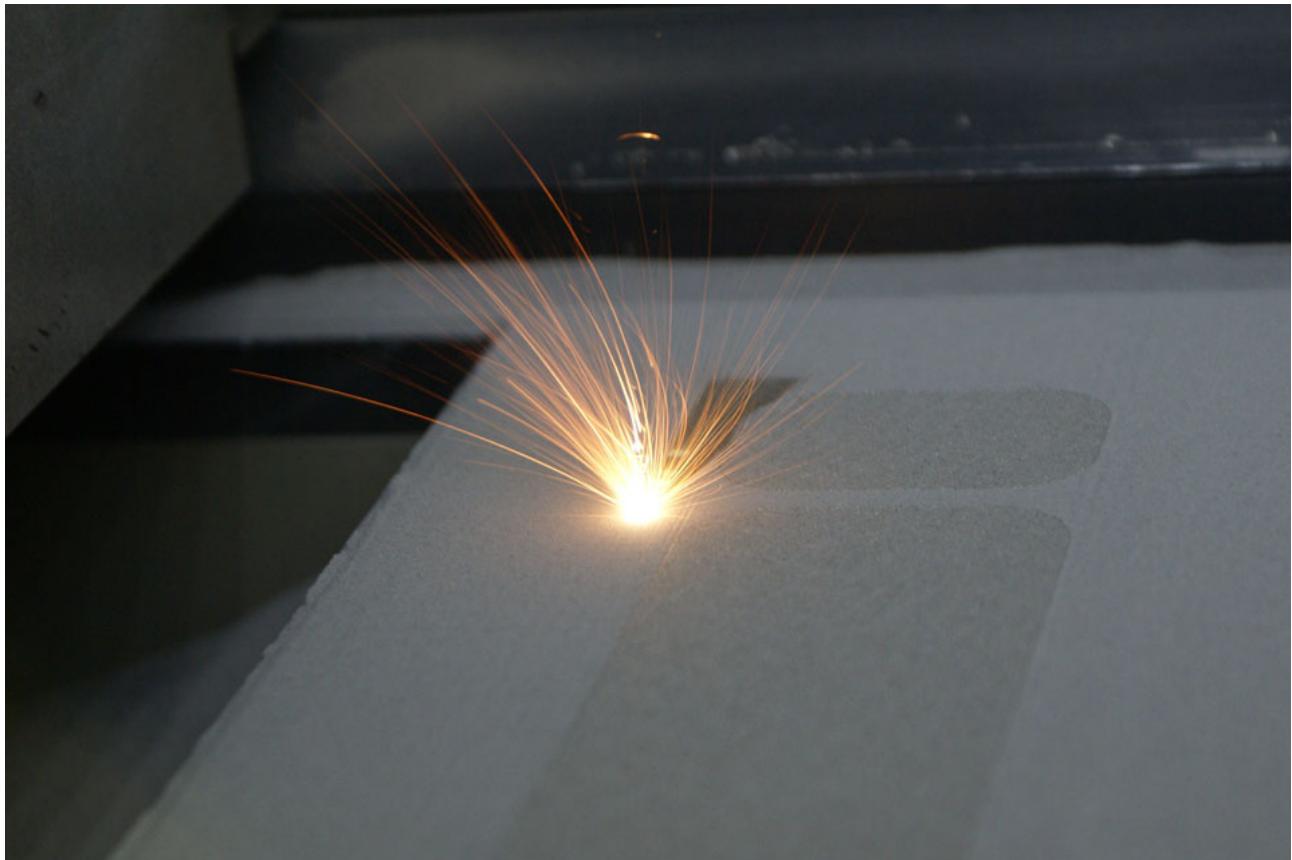
i

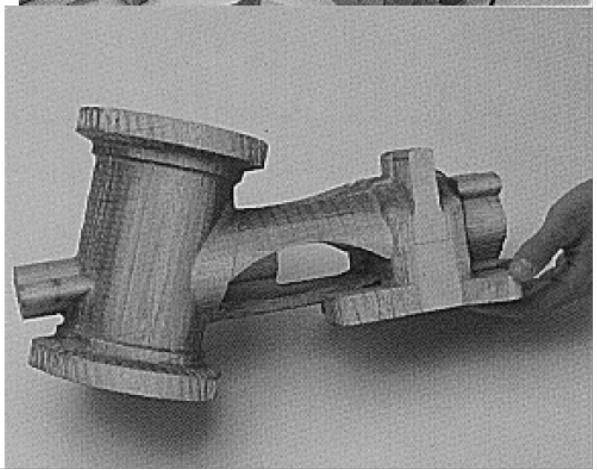
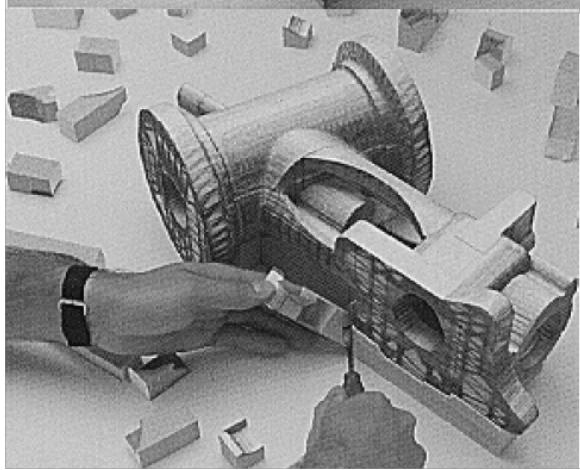
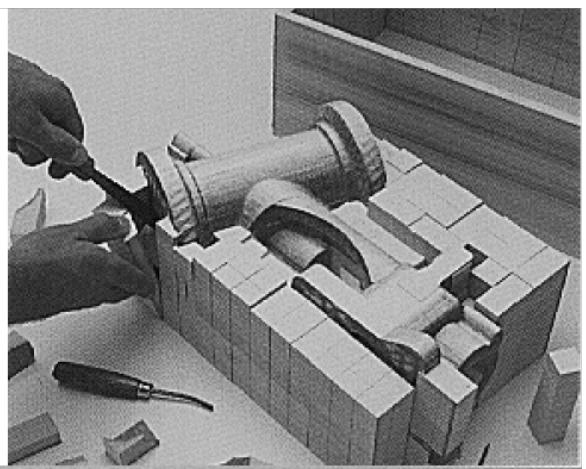
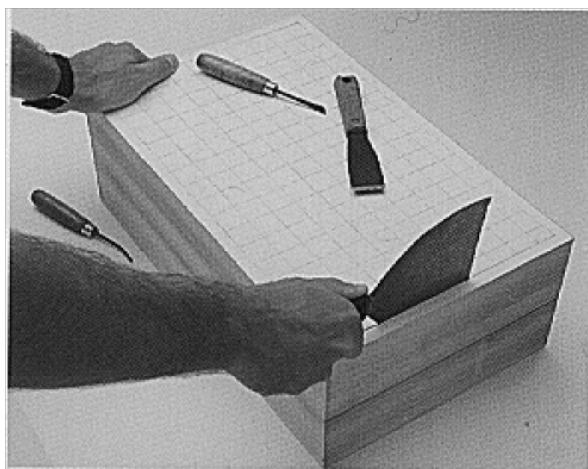


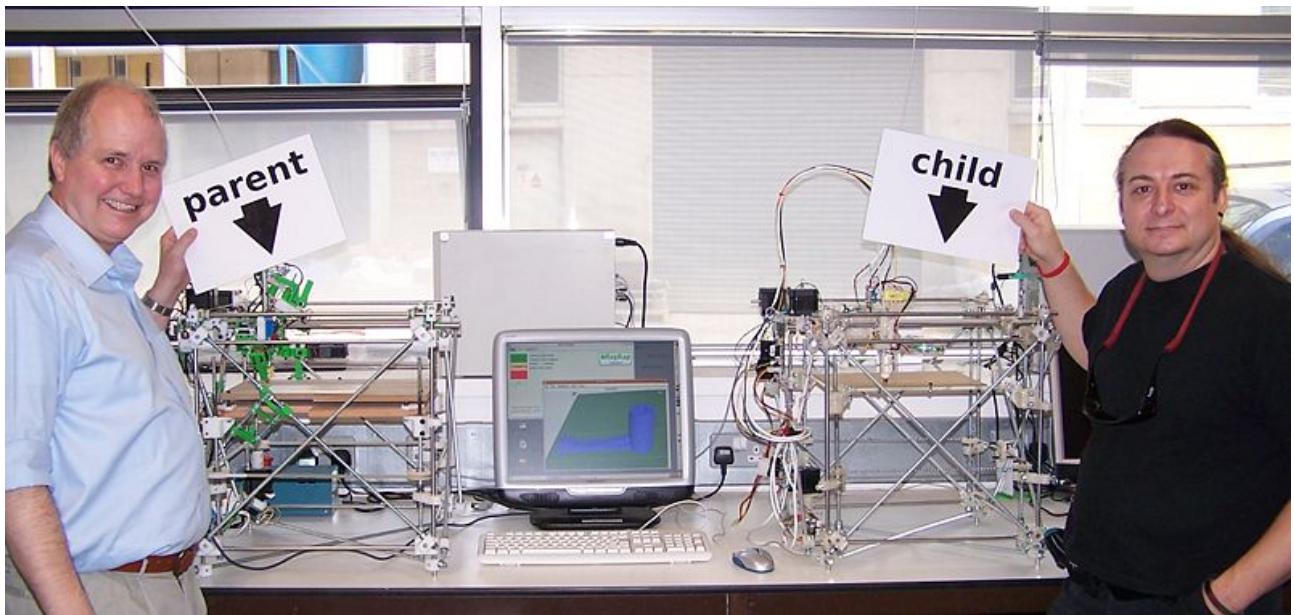


-

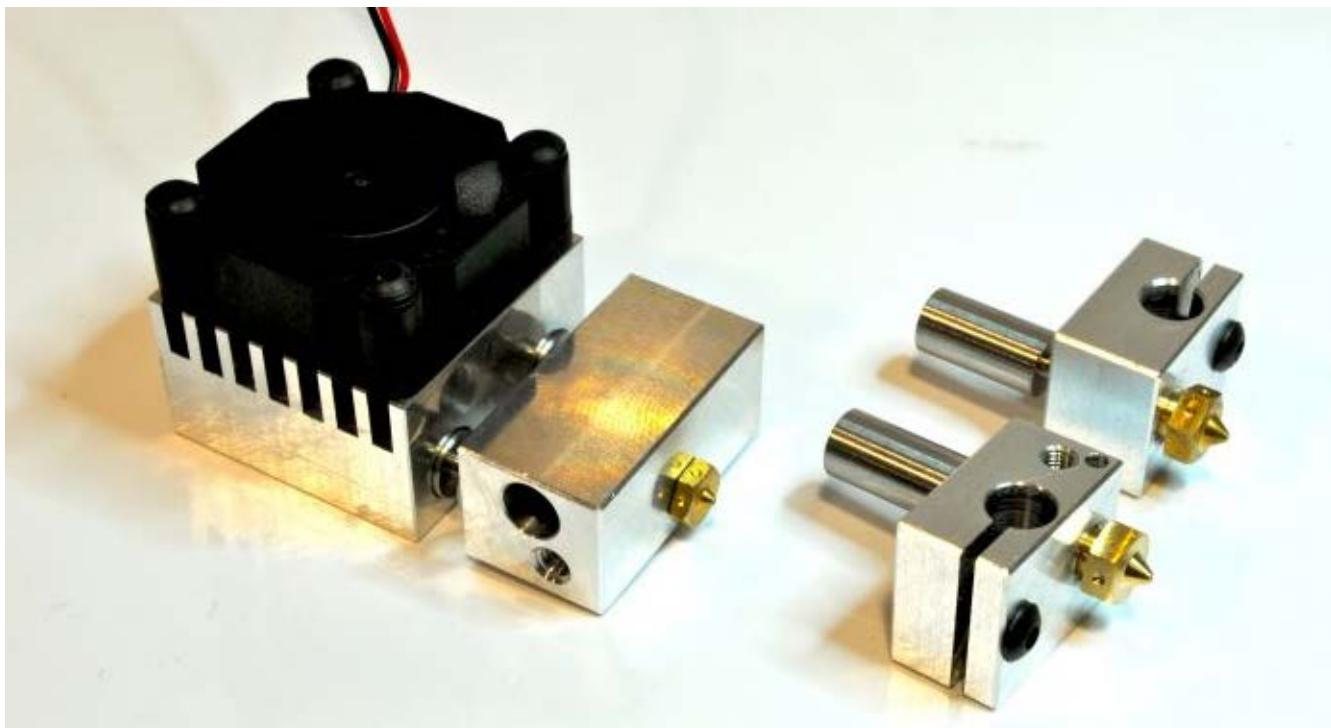












i



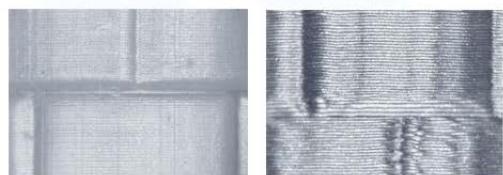


|





B9 Creator **Formlabs Form1**
(2012, DLP) **(2013, SLA)**









JOSHUA M. PEARCE

OPEN-SOURCE LAB

HOW TO BUILD YOUR
OWN HARDWARE AND
REDUCE RESEARCH COSTS

ANALOG IN

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
259
260
261
262
263
264
265
266
267
268
269
269
270
271
272
273
274
275
276
277
278
279
279
280
281
282
283
284
285
286
287
288
289
289
290
291
292
293
294
295
296
297
297
298
299
299
300
300
301
301
302
302
303
303
304
304
305
305
306
306
307
307
308
308
309
309
310
310
311
311
312
312
313
313
314
314
315
315
316
316
317
317
318
318
319
319
320
320
321
321
322
322
323
323
324
324
325
325
326
326
327
327
328
328
329
329
330
330
331
331
332
332
333
333
334
334
335
335
336
336
337
337
338
338
339
339
340
340
341
341
342
342
343
343
344
344
345
345
346
346
347
347
348
348
349
349
350
350
351
351
352
352
353
353
354
354
355
355
356
356
357
357
358
358
359
359
360
360
361
361
362
362
363
363
364
364
365
365
366
366
367
367
368
368
369
369
370
370
371
371
372
372
373
373
374
374
375
375
376
376
377
377
378
378
379
379
380
380
381
381
382
382
383
383
384
384
385
385
386
386
387
387
388
388
389
389
390
390
391
391
392
392
393
393
394
394
395
395
396
396
397
397
398
398
399
399
400
400
401
401
402
402
403
403
404
404
405
405
406
406
407
407
408
408
409
409
410
410
411
411
412
412
413
413
414
414
415
415
416
416
417
417
418
418
419
419
420
420
421
421
422
422
423
423
424
424
425
425
426
426
427
427
428
428
429
429
430
430
431
431
432
432
433
433
434
434
435
435
436
436
437
437
438
438
439
439
440
440
441
441
442
442
443
443
444
444
445
445
446
446
447
447
448
448
449
449
450
450
451
451
452
452
453
453
454
454
455
455
456
456
457
457
458
458
459
459
460
460
461
461
462
462
463
463
464
464
465
465
466
466
467
467
468
468
469
469
470
470
471
471
472
472
473
473
474
474
475
475
476
476
477
477
478
478
479
479
480
480
481
481
482
482
483
483
484
484
485
485
486
486
487
487
488
488
489
489
490
490
491
491
492
492
493
493
494
494
495
495
496
496
497
497
498
498
499
499
500
500
501
501
502
502
503
503
504
504
505
505
506
506
507
507
508
508
509
509
510
510
511
511
512
512
513
513
514
514
515
515
516
516
517
517
518
518
519
519
520
520
521
521
522
522
523
523
524
524
525
525
526
526
527
527
528
528
529
529
530
530
531
531
532
532
533
533
534
534
535
535
536
536
537
537
538
538
539
539
540
540
541
541
542
542
543
543
544
544
545
545
546
546
547
547
548
548
549
549
550
550
551
551
552
552
553
553
554
554
555
555
556
556
557
557
558
558
559
559
560
560
561
561
562
562
563
563
564
564
565
565
566
566
567
567
568
568
569
569
570
570
571
571
572
572
573
573
574
574
575
575
576
576
577
577
578
578
579
579
580
580
581
581
582
582
583
583
584
584
585
585
586
586
587
587
588
588
589
589
590
590
591
591
592
592
593
593
594
594
595
595
596
596
597
597
598
598
599
599
600
600
601
601
602
602
603
603
604
604
605
605
606
606
607
607
608
608
609
609
610
610
611
611
612
612
613
613
614
614
615
615
616
616
617
617
618
618
619
619
620
620
621
621
622
622
623
623
624
624
625
625
626
626
627
627
628
628
629
629
630
630
631
631
632
632
633
633
634
634
635
635
636
636
637
637
638
638
639
639
640
640
641
641
642
642
643
643
644
644
645
645
646
646
647
647
648
648
649
649
650
650
651
651
652
652
653
653
654
654
655
655
656
656
657
657
658
658
659
659
660
660
661
661
662
662
663
663
664
664
665
665
666
666
667
667
668
668
669
669
670
670
671
671
672
672
673
673
674
674
675
675
676
676
677
677
678
678
679
679
680
680
681
681
682
682
683
683
684
684
685
685
686
686
687
687
688
688
689
689
690
690
691
691
692
692
693
693
694
694
695
695
696
696
697
697
698
698
699
699
700
700
701
701
702
702
703
703
704
704
705
705
706
706
707
707
708
708
709
709
710
710
711
711
712
712
713
713
714
714
715
715
716
716
717
717
718
718
719
719
720
720
721
721
722
722
723
723
724
724
725
725
726
726
727
727
728
728
729
729
730
730
731
731
732
732
733
733
734
734
735
735
736
736
737
737
738
738
739
739
740
740
741
741
742
742
743
743
744
744
745
745
746
746
747
747
748
748
749
749
750
750
751
751
752
752
753
753
754
754
755
755
756
756
757
757
758
758
759
759
760
760
761
761
762
762
763
763
764
764
765
765
766
766
767
767
768
768
769
769
770
770
771
771
772
772
773
773
774
774
775
775
776
776
777
777
778
778
779
779
780
780
781
781
782
782
783
783
784
784
785
785
786
786
787
787
788
788
789
789
790
790
791
791
792
792
793
793
794
794
795
795
796
796
797
797
798
798
799
799
800
800
801
801
802
802
803
803
804
804
805
805
806
806
807
807
808
808
809
809
810
810
811
811
812
812
813
813
814
814
815
815
816
816
817
817
818
818
819
819
820
820
821
821
822
822
823
823
824
824
825
825
826
826
827
827
828
828
829
829
830
830
831
831
832
832
833
833
834
834
835
835
836
836
837
837
838
838
839
839
840
840
841
841
842
842
843
843
844
844
845
845
846
846
847
847
848
848
849
849
850
850
851
851
852
852
853
853
854
854
855
855
856
856
857
857
858
858
859
859
860
860
861
861
862
862
863
863
864
864
865
865
866
866
867
867
868
868
869
869
870
870
871
871
872
872
873
873
874
874
875
875
876
876
877
877
878
878
879
879
880
880
881
881
882
882
883
883
884
884
885
885
886
886
887
887
888
888
889
889
890
890
891
891
892
892
893
893
894
894
895
895
896
896
897
897
898
898
899
899
900
900
901
901
902
902
903
903
904
904
905
905
906
906
907
907
908
908
909
909
910
910
911
911
912
912
913
913
914
914
915
915
916
916
917
917
918
918
919
919
920
920
921
921
922
922
923
923
924
924
925
925
926
926
927
927
928
928
929
929
930
930
931
931
932
932
933
933
934
934
935
935
936
936
937
937
938
938
939
939
940
940
941
941
942
942
943
943
944
944
945
945
946
946
947
947
948
948
949
949
950
950
951
951
952
952
953
953
954
954
955
955
956
956
957
957
958
958
959
959
960
960
961
961
962
962
963
963
964
964
965
965
966
966
967
967
968
968
969
969
970
970
971
971
972
972
973
973
974
974
975
975
976
976
977
977
978
978
979
979
980
980
981
981
982
982
983
983
984
984
985
985
986
986
987
987
988
988
989
989
990
990
991
991
992
992
993
993
994
994
995
995
996
996
997
997
998
998
999
999
1000
1000

A collage of hexagonal images showing various electronic components and projects, including a 3D printer, a red button, a fan, batteries, and circuit boards.

i

!

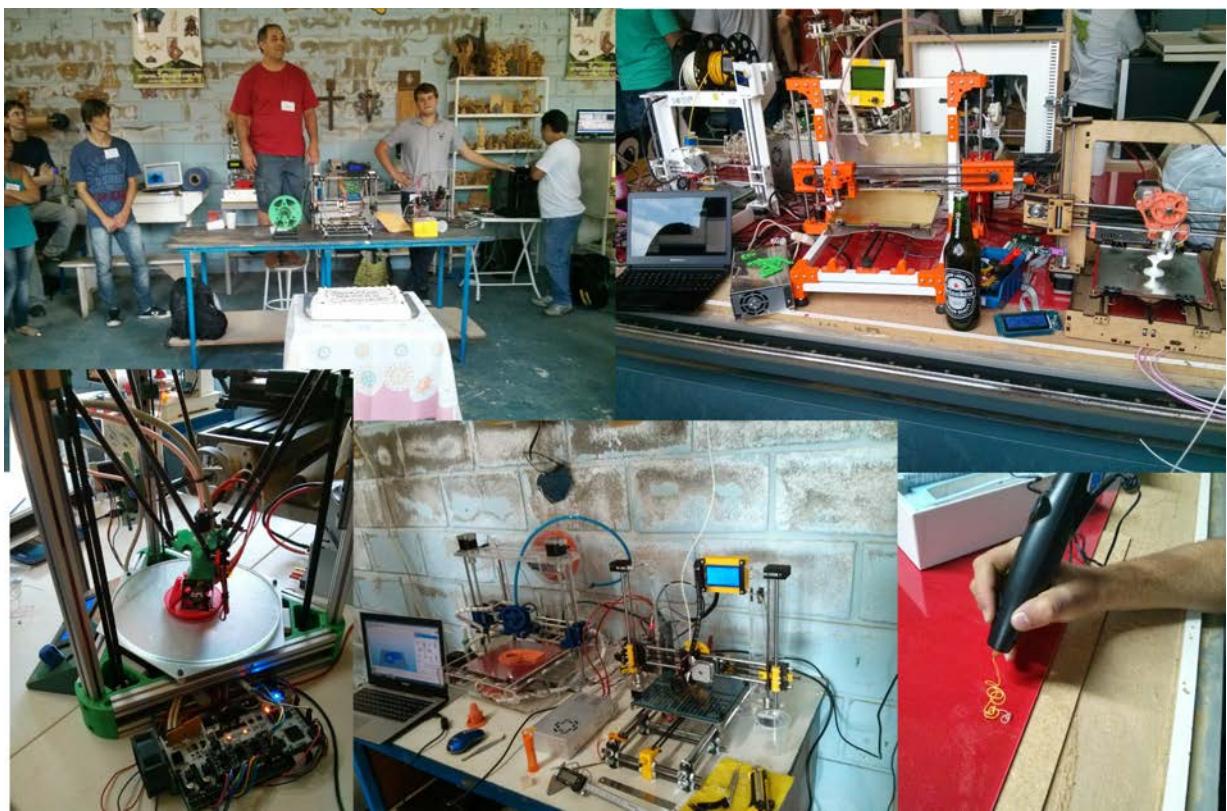
Este é o convite oficial para participação do Grupo de Estudo para RepRap.

* O objetivo é comprar um kit derivado do RepRap <<http://store.makerbot.com/featured-products/cupcake-cnc-basic.html>> cujo custo é de US\$750, se conseguirmos trazer sem impostos. Não é o RepRap original, mas usa as mesmas placas. Infelizmente o dinheiro vai ter que vir na frente, nenhum de nós tem como bancar...

* vamos nos reunir regularmente uma vez por mês na masmorra (Sir. Jorge já deu sua benção).

* Vamos estudar esse protótipo para estudar como fazer nossas cópias e estudar também como fazer usando CNCs que já existem. Estudo preliminar já mostrou que deve ser possível, mas parte do Hardware tem que ser o deles para ser compatível com o software.

* Este grupo é só para quem estiver presente, tudo que levantarmos será conhecimento aberto, mas não pretendemos ficar documentando de progresso do nosso estudo. Salvo é claro que alguém seja voluntário para esse fim específico.











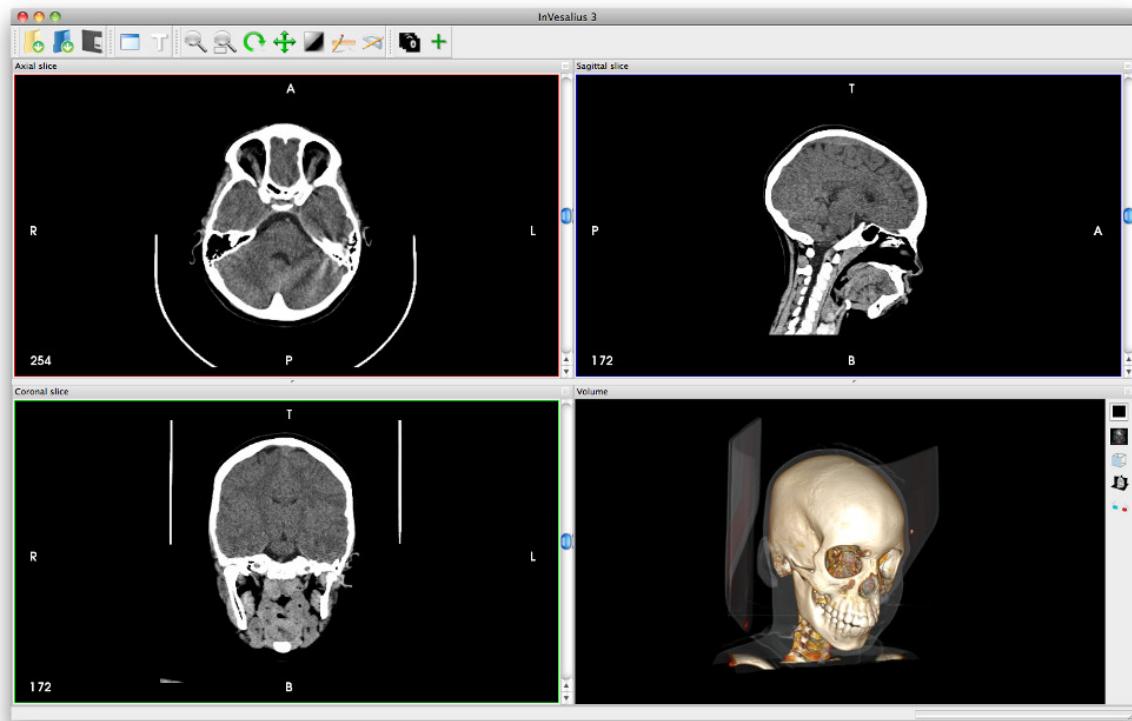




Dott. Paulo Miamoto (FO-USP, Brasile)

Stampa 3D - Cláudio Luís Marques Sampaio

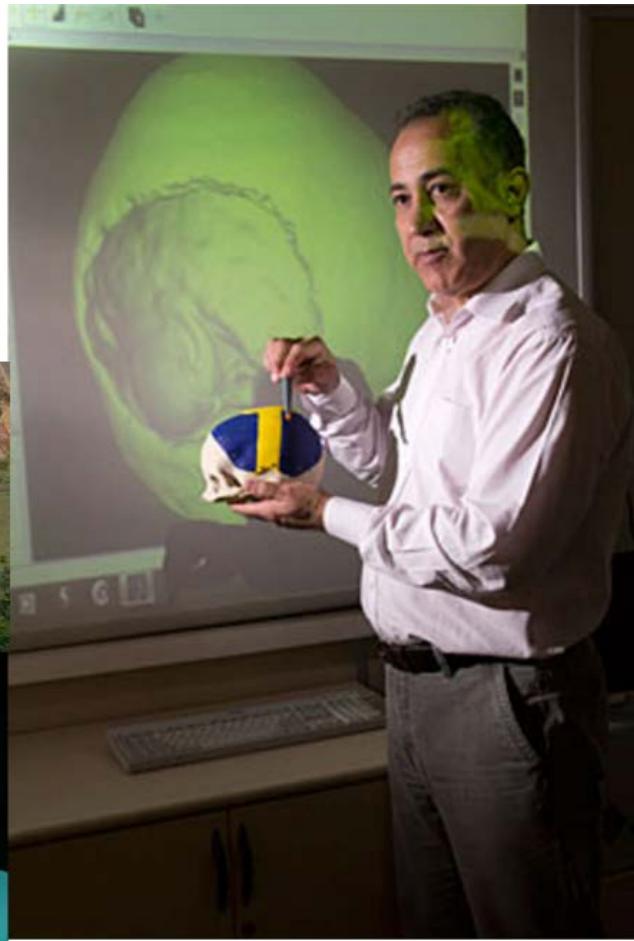
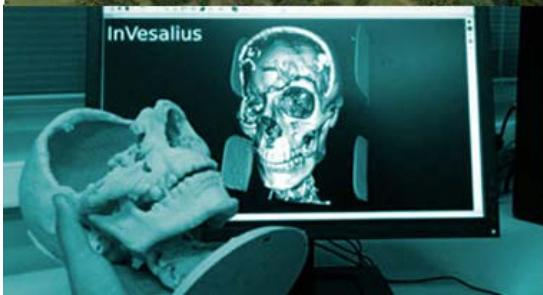






Centro de
Tecnologia da
Informação
Renato Archer

Vista Aérea



NERI VOLPATO

PROTOTIPAGEM RÁPIDA

TECNOLOGIAS E APLICAÇÕES

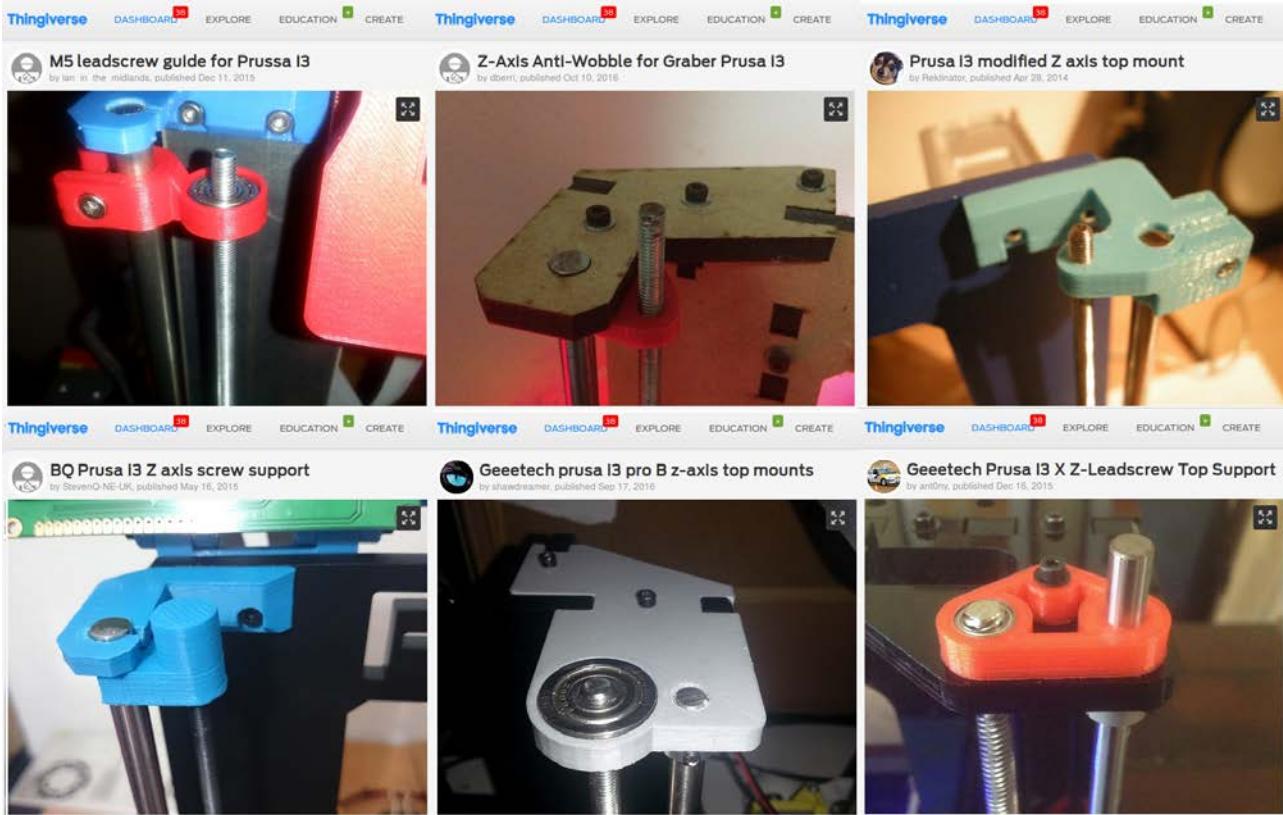


CARLOS HENRIQUE AHRENS
CRISTIANO VASCONCELLOS FERREIRA
GÜNTHER PETRUSH
JONAS DE CARVALHO
JORGE ROBERTO LOPES DOS SANTOS
JORGE VICENTE LOPES DA SILVA
NERI VOLPATO

 EDITORA BLÜCHER



i





Information

Help

FAQ

Support

Feedback

Report

Issue

Problem

Question

Answer

Advice

Solution

Helpful

Useful

有益

有用

有帮助

有解决方法

有答案

有反馈

有报告

有支持

有信息

有帮助

有解答

有建议

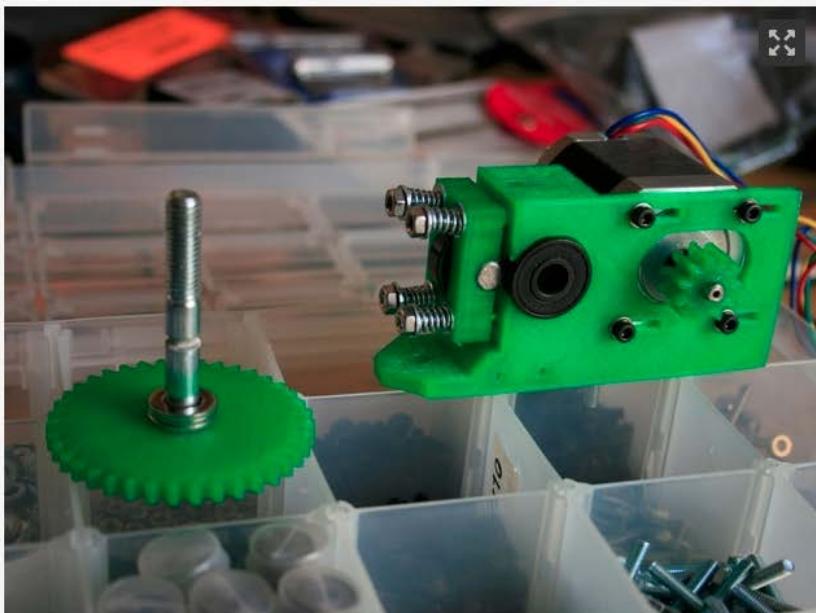
有解决方案

有问题



Wade's Geared Nema 17 Extruder

by Wade, published Feb 10, 2010



DOWNLOAD ALL FILES

	Like	323
	Collect	414
	Comment	39
	I Made One	29
	Watch	15
	Remix It	22
	Share	

Thing Apps Enabled

- Order This Printed
- View All Apps

Thing Details

Thing Files

Apps

39
Comments

29
Made

414
Collections

22
Remixes



Accessible Wade's Extruder

by GregFrost, published Feb 27, 2011



DOWNLOAD ALL FILES

	Like	428
	Collect	568
	Comment	40
	I Made One	22
	Watch	15
	Remix It	19
	Share	

Thing Apps Enabled

Order This Printed

View All Apps



	Thing Details		Thing Files		Apps	40	Comments	22	Made	568	Collections	19	Remixes
--	---------------	--	-------------	--	------	----	----------	----	------	-----	-------------	----	---------

Greg's Wade reloaded - Guldler, Tilt Screws, Fishbone Gears

by jonaskuehling, published Mar 1, 2012



[DOWNLOAD ALL FILES](#)

	Like	1560
	Collect	2594
	Comment	178
	I Made One	89
	Watch	102
	Remix It	88
	Share	

Thing Apps Enabled

- Order This Printed
- View All Apps



Thing Details

Thing Files

Apps

178
Comments

89
Made

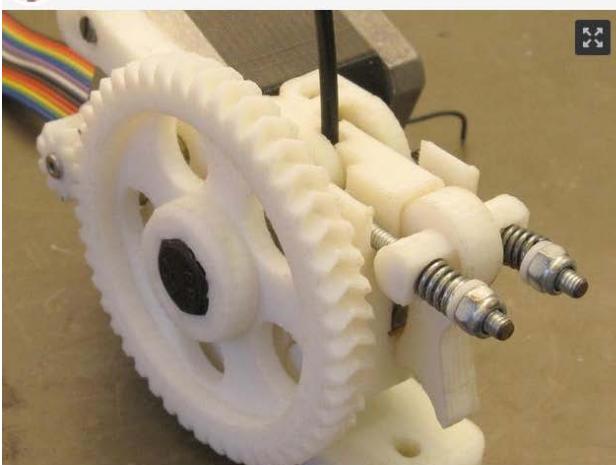
2594
Collections

88
Remixes



AJGW Alain-Jonas-Greg-Wade's Extruder

by AlainMouette, published Jan 27, 2013



[Download All Files](#)

Like 363

Collect 664

Comment 24

I Made One 10

Watch 28

Remix It 6

Share

Thing Apps Enabled

Order This Printed

View All Apps

Thing Details

Thing Files

Apps

24
Comments

10
Made

664
Collections

6
Remixes

Tags

Add Tags

[extruder](#) [openscad](#) [parametric](#) [prusa](#)

Remixed From

Accessible Wade's Extruder by GregFrost

Greg's Wade reloaded - Guidler, Tilt Screws, Fishbone Gears by jonaskuehling

Wade goes Fishing by Stoffel15

Quick Release Lever for wade by litwan

License



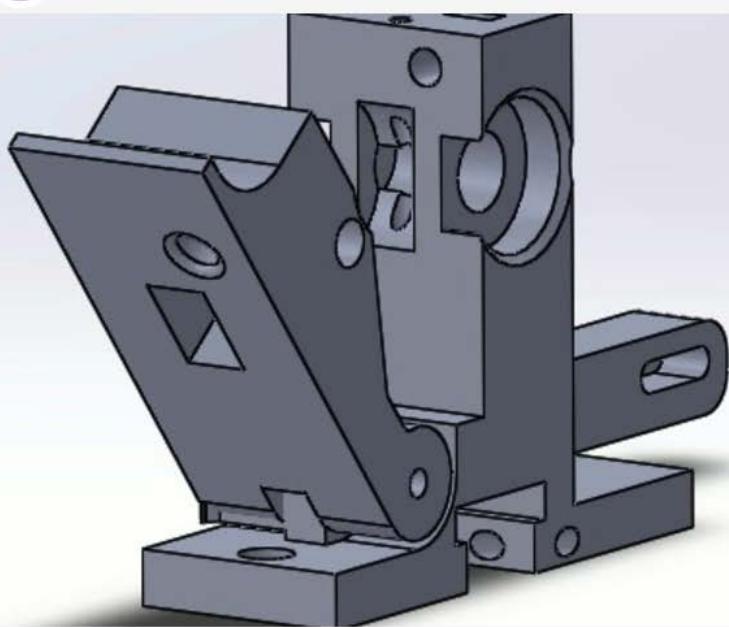
SOME RIGHTS RESERVED

AJGW Alain-Jonas-Greg-Wade's Extruder by AlainMouette is licensed under the GNU - GPL license.



Alex Extruder 1.75mm

by AlexBorro, published Jan 6, 2014



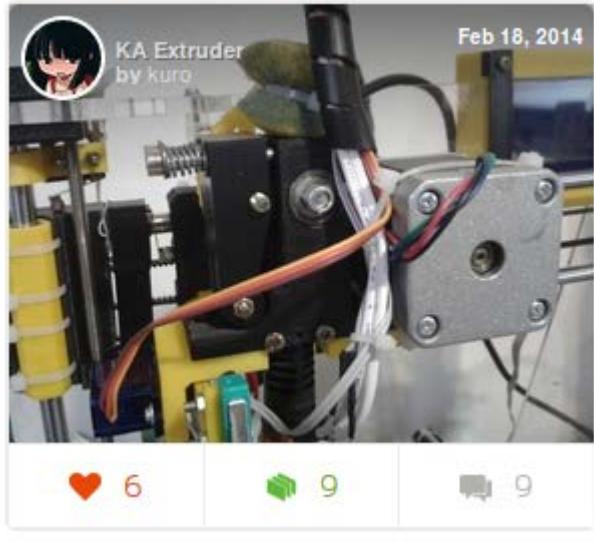
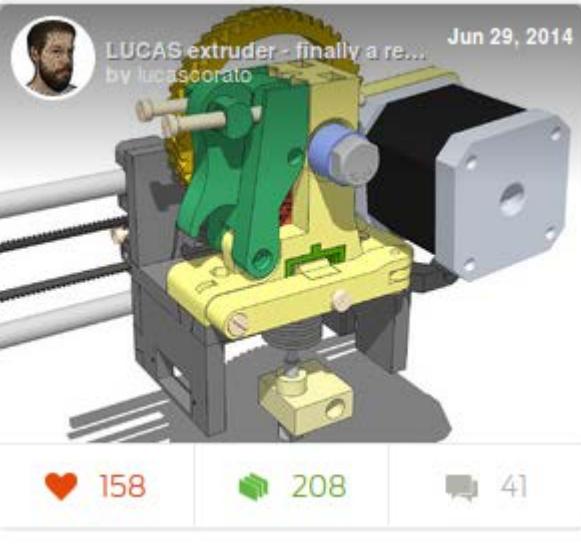
DOWNLOAD ALL FILES

- Like 157
- Collect 228
- Comment 30
- I Made One 6
- Watch 16
- Remix It 2
- Share

Thing Apps Enabled

- Order This Printed
- View All Apps

Thing Details	Thing Files	Apps	30 Comments	6 Made	228 Collections	2 Remixes
---------------	-------------	------	-------------	--------	-----------------	-----------





i



3D HUBS

3D Print ▾

Learn ▾

My orders



3D Print

GENERAL PURPOSE PLASTICS
Rigid plastics for fast and cost effective prototyping. Tolerances of +/- 1mm.

[Learn more](#)

HIGH DETAIL RESIN
Intricate designs and sculptures with a smooth surface finish.

[Learn more](#)

SLS NYLON
Functional prototypes and end-use parts from laser sintered nylon.

[Learn more](#)

FIBER-REINFORCED NYLON NEW
Engineering parts as strong as aluminum for the price of plastic.

[Learn more](#)

RIGID OPAQUE PLASTIC
Realistic prototypes with excellent details and high accuracy.

[Learn more](#)

RUBBER-LIKE PLASTIC
Simulate rubber with various levels of elasticity.

[Learn more](#)

③ Select a 3D printing service

Sort: Recommended Closest Shipping Pickup Invoicing Favorites More filters ▾ Campinas, Brazil ↗

Material Group General Purpose Plastics X Pickup X

300+ results

Loja_ConnectNet's Hub...
Last active 3 months ago
 4.1 (2)
📍 Campinas, BR
2.4 km away

Services

Available materials:
ABS
PLA

Ready by 1 March
Select

Desenha3D's Hub
Last active 22 days ago
 5.0 (1)
📍 Campinas, BR
2.8 km away

Services

Available materials:
ABS
PLA

Ready by 2 March
Select

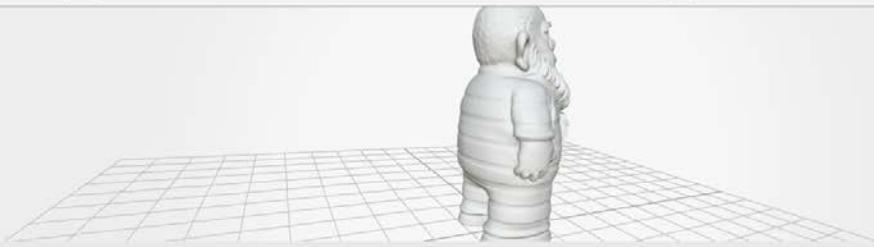
[cammada.com/imprimir/NV5jH/Pixuleco_60mm-spectoys.stl](#)

Medidas
3,7 x 2,8 x 6,0 cm

Volume
25,0 cm³

Arquivo

TROCAR ARQUIVO



01.
Informe seu CEP para calcular o frete

13082- CALCULAR FRETE

Filtrar cor Ordenar por

02.
Escolha sua impressão ideal.

Plástico ABS <small>Média resolução</small>	Azul <input type="button"/>	6 dias úteis	R\$ 25	<input type="button" value="IMPRIMIR"/> Nano 3D ★ 5,0 GTMax 3D Core A2
Plástico PLA <small>Média resolução</small>	Amarelo <input type="button"/>	6 dias úteis	R\$ 25	<input type="button" value="IMPRIMIR"/> Nano 3D ★ 5,0 GTMax 3D Core A2

cammada.com/calculadora

Como calcular o preço de uma impressão 3d?

A Cammada desenvolveu uma maneira simples para te ajudar nessa tarefa.

Basta seguir o passo a passo abaixo, digitando as informações em cada campo.

Com base nos custos apontados por você, sua política de descontos e sua expectativa de lucro por pedido, iremos indicar o preço que deve cobrar e o valor mínimo do pedido para nunca ter prejuízo!

01. Custo de material

Calculado em função da quantidade estimada de insumo para impressão de um determinado pedido.

Densidade	Peso	Preço	Desperdício
1,25 g/cm ³	1 kg	R\$ 160	40 %

02. Custo de máquina

Calculado em função do tempo estimado para impressão de um determinado pedido.

Investimento	Uso semanal	Vida útil	Resolução
R\$ 8000	30 h	3 anos	Baixa

03. Simulador de preços

R\$ 700

R\$ 525

R\$ 350

Lucro mínimo

R\$ 100

The graph illustrates how increasing the selling price leads to higher profit, with a minimum profit requirement of R\$ 100 indicated by a horizontal bar.

<https://www.catarse.me/metamaquina-3d>

Metamáquina 3D

por



R\$ 30.036
apoiodados por 155 pessoas

130%

 **Meta R\$ 23.000**
Campanha Tudo-ou-nada [?](#)

Este projeto foi bem-sucedido e foi
financiado em 29/03/2012

São Paulo, SP Ciéncia e Tecnologia

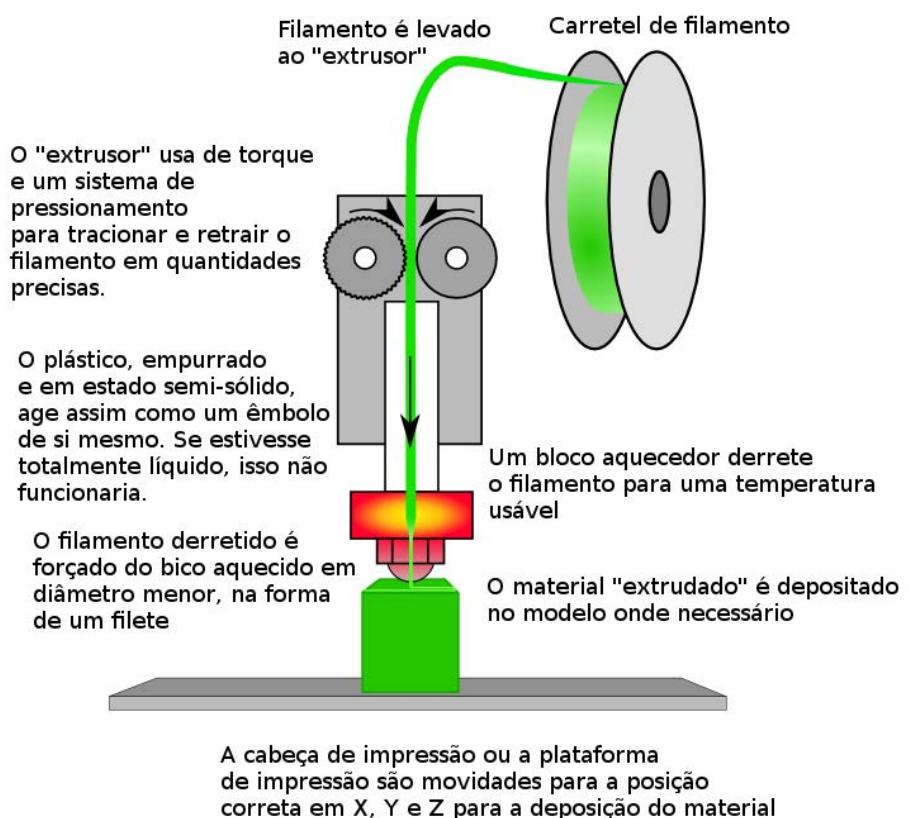
1 criado | 0 apoiado

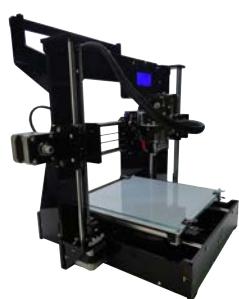
[Contato](#) 

Queremos popularizar impressoras 3D. Apoie a produção do primeiro lote e leve um objeto único, uma oficina ou até uma delas como recompensa!

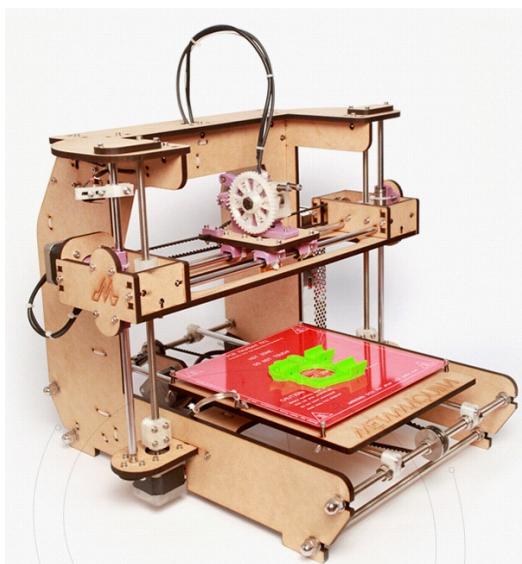


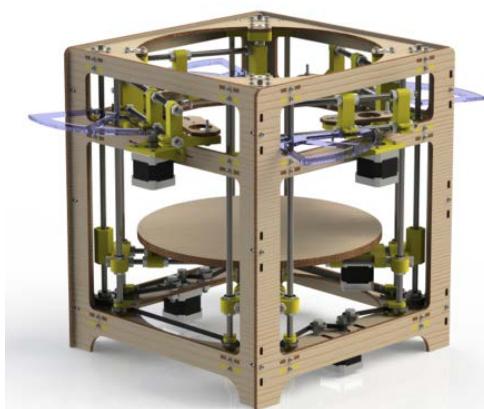
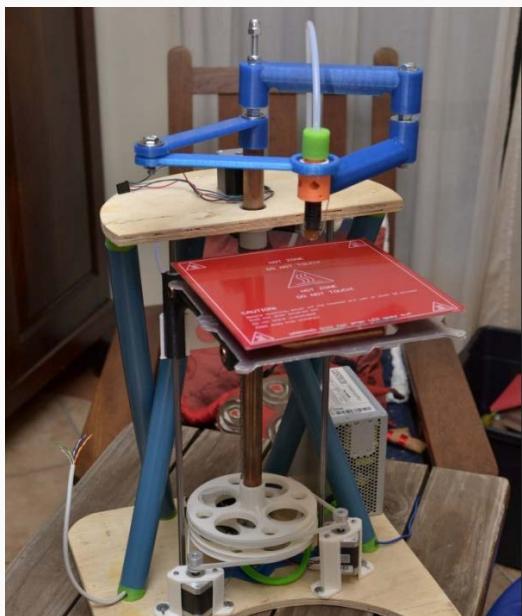


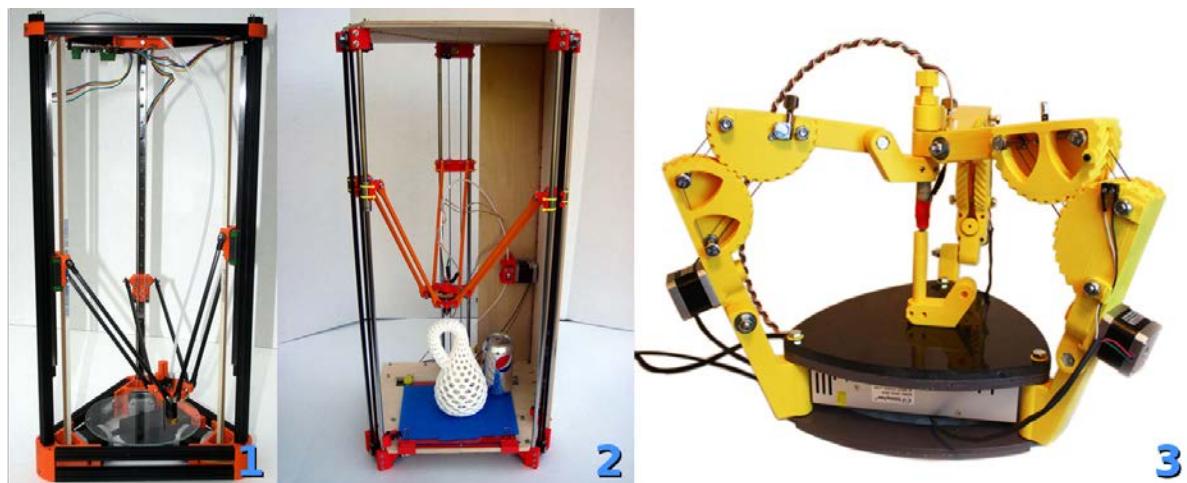


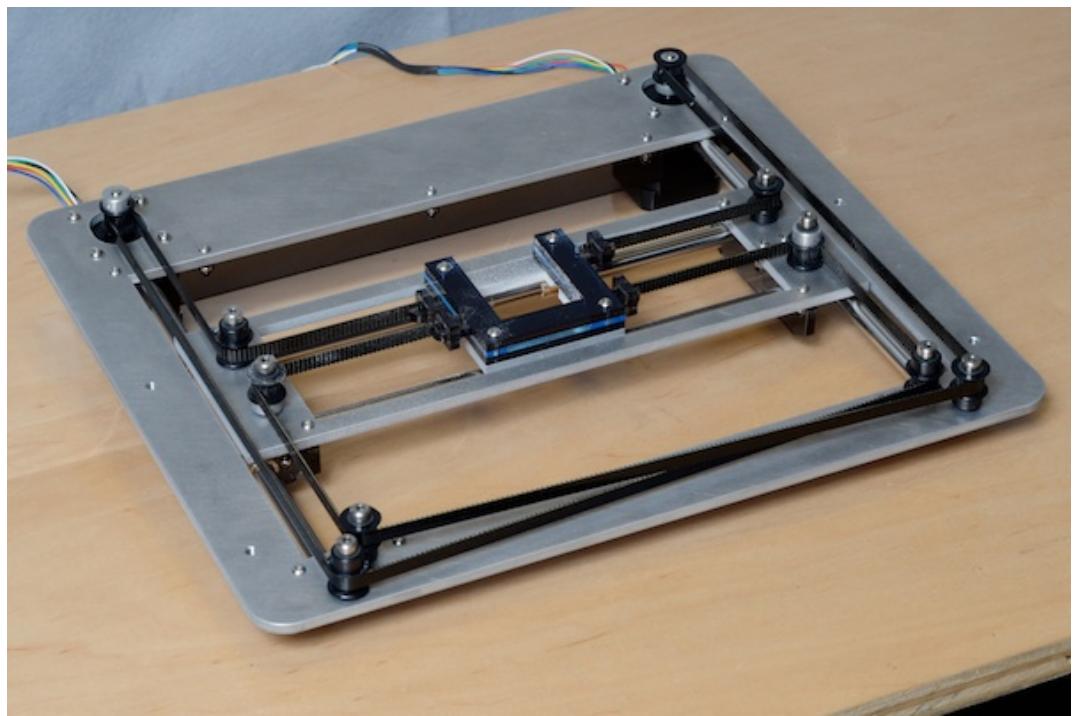
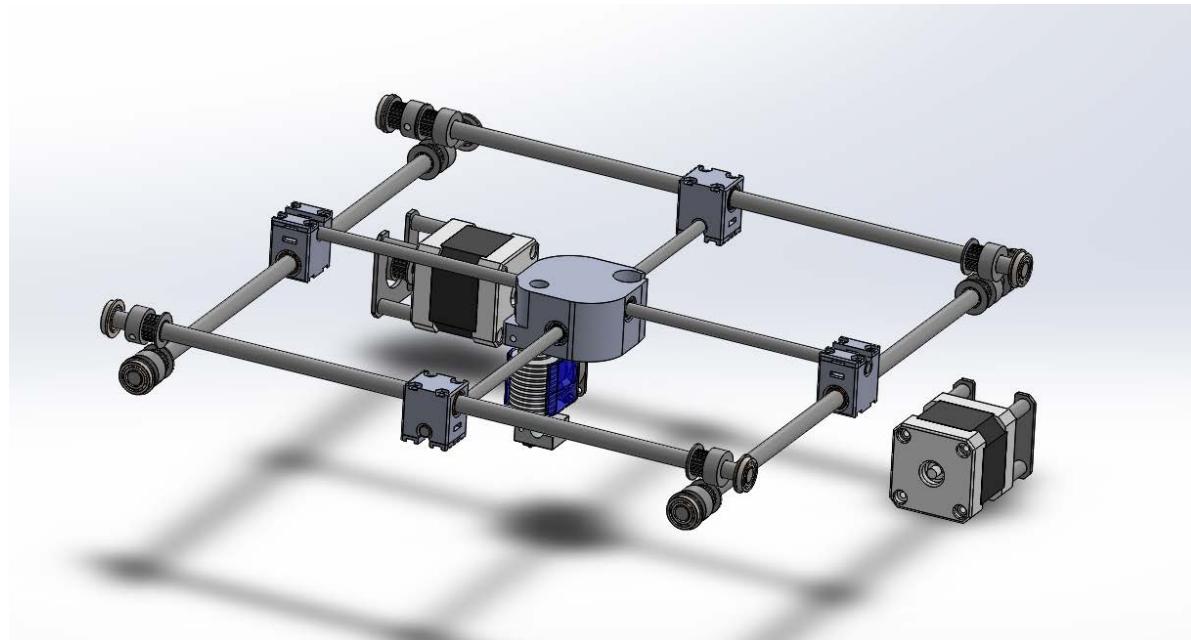




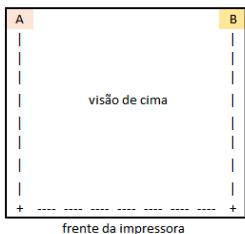




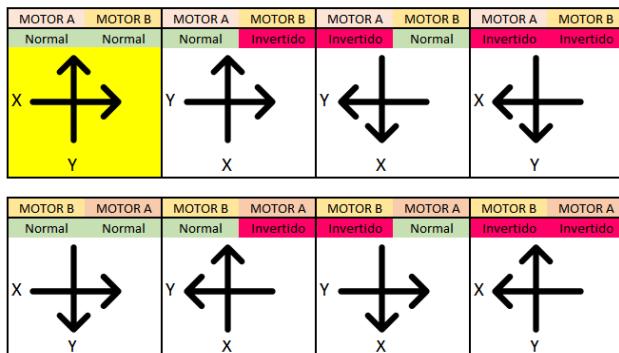




Para o posicionamento de motores abaixo: O comportamento é o seguinte:



frente da impressora



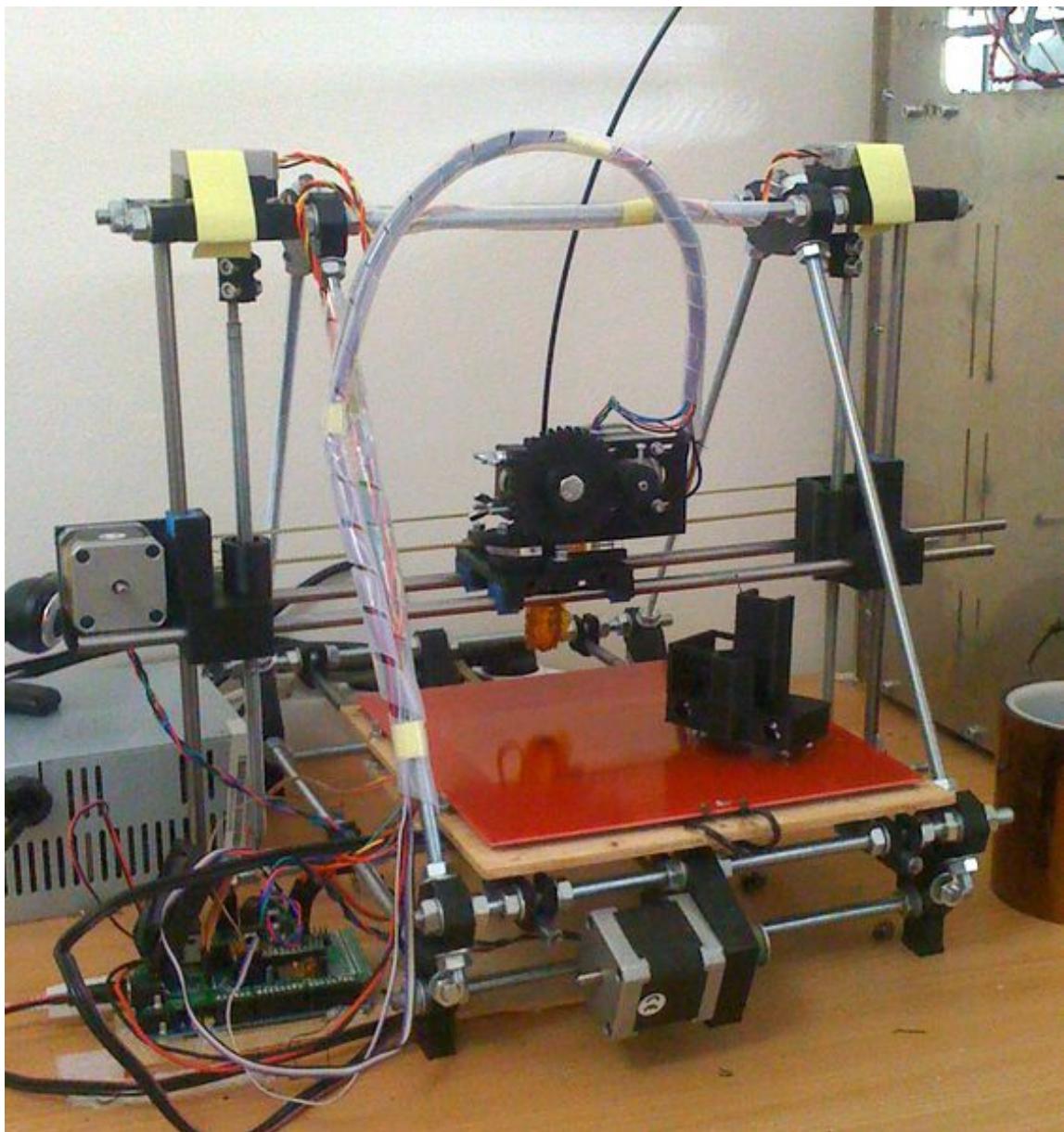
Legenda:

MOTOR A	MOTOR B
MOTOR B	MOTOR A
Normal	
Invertido	

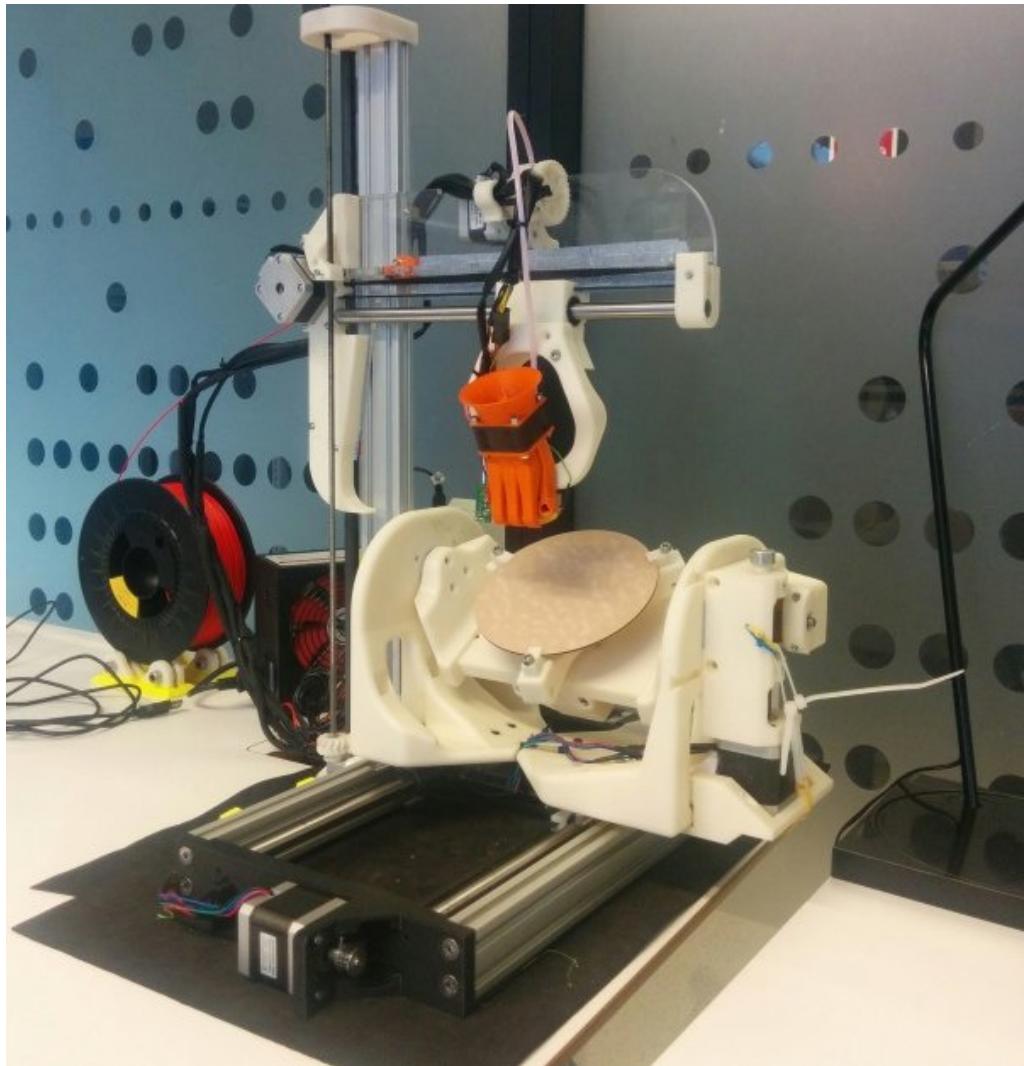
significa que os motores estão na ordem certa, deixe-os nos plugs atuais
significa que os motores estão invertidos entre si, troque os plugs X e Y
significa que o plug está correto, motor girando para o lado certo
significa que o motor está girando para o lado errado, inverta o plug 180 graus
a seta significa que o eixo cresce (positivo) para o lado indicado

Dicas:

Plugue os motores de qualquer jeito em qualquer conector. Observe como os eixos X e Y se comportam e procure na tabela ao lado. Após localizar, observe o que está errado e inverta os motores, ou os plugs, ou ambos. Observe que nos últimos 4 casos, se os motores estiverem invertidos, nenhuma configuração é satisfatória. A inversão dos motores deve ser física, já a inversão das direções pode ser feita tanto girando os conectores quanto invertendo a lógica na firmware.

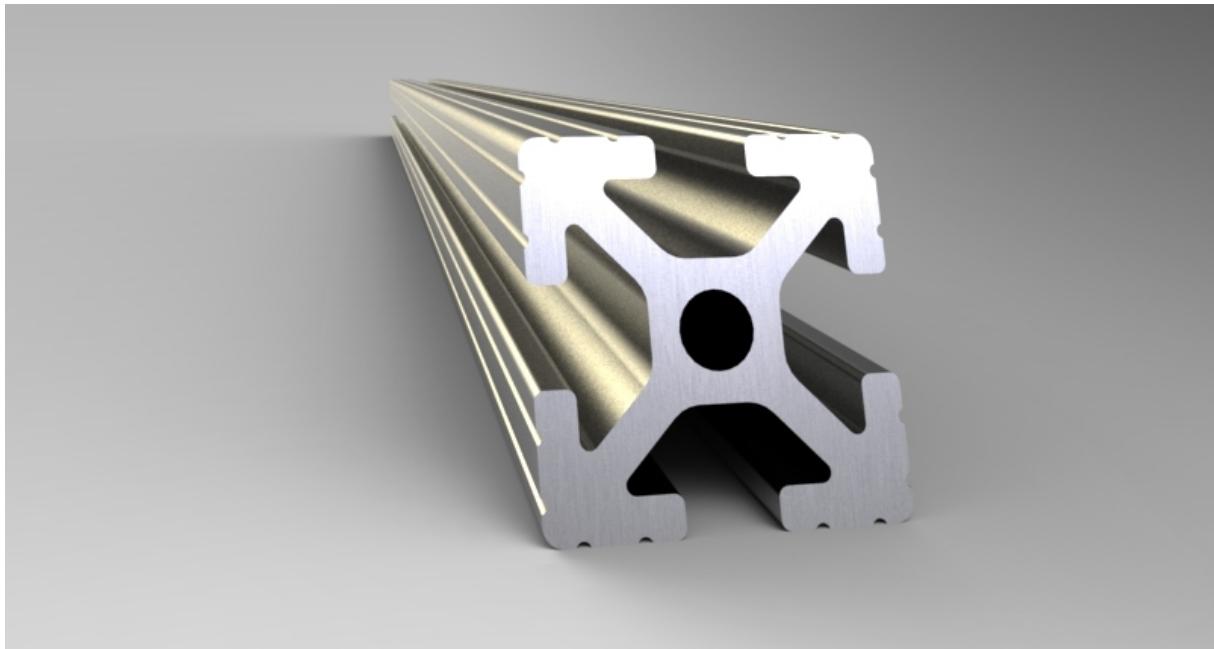


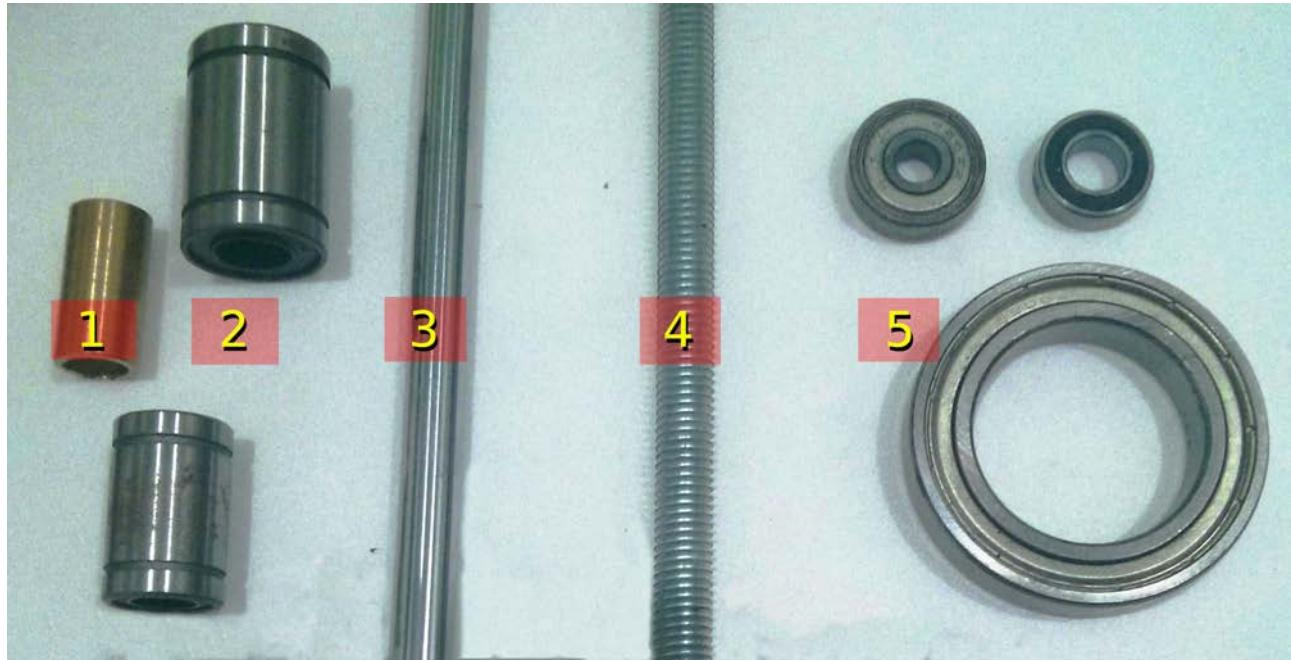














drylin® R - OJUI-03

Self-aligning linear plain bearing, open, inch

» [drylin® R - OJUI-03](#)



drylin® R - OJUI-23

Low Clearance Self-aligning linear plain bearing, open, inch

» [drylin® R - OJUI-23](#)



drylin® R - RJI-01

Polymer bearing, inch

» [drylin® R - RJI-01](#)



drylin® R - RJUI-01

Stainless Steel linear bearing adapter with liner, inch.

» [Stainless Steel linear bearing with plastic liner](#)



drylin® R - RJUM-01

Enclosed linear plain bearing, mm

» [drylin® R - RJUM-01](#)

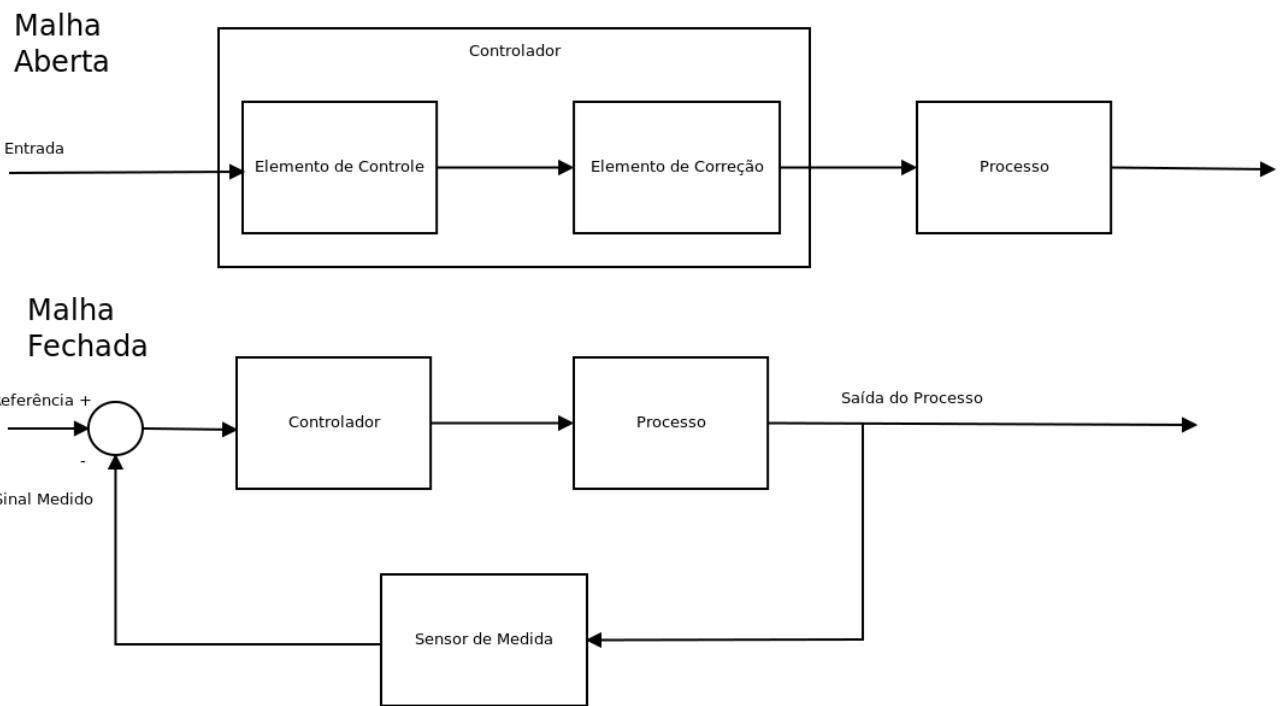


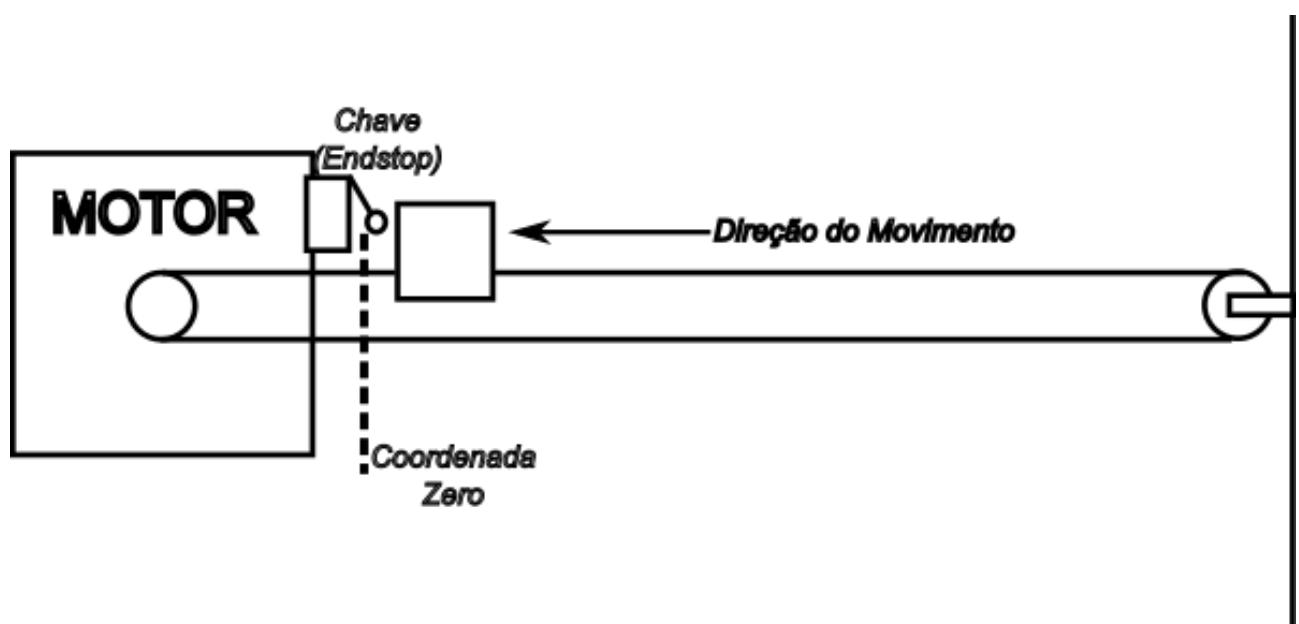
drylin® R - RJUM-21

Enclosed Low Clearance linear plain bearing, mm

» [drylin® R - RJUM-21](#)









InDemand

BLTouch : Auto Bed Leveling Sensor for 3D Printers

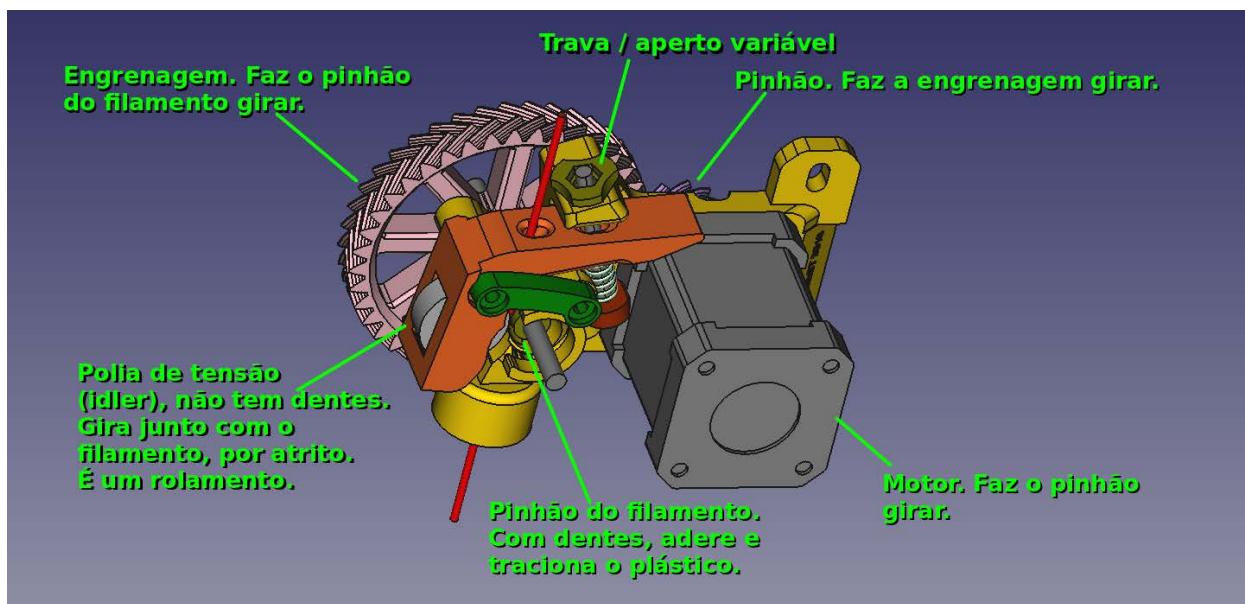
NOW SHIPPING! Only for 15 days from April 24th, 2016.

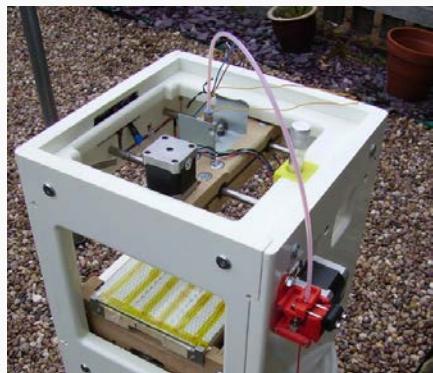
 Paris K. Lee
SEOUL, Korea, Republic of
[About](#)

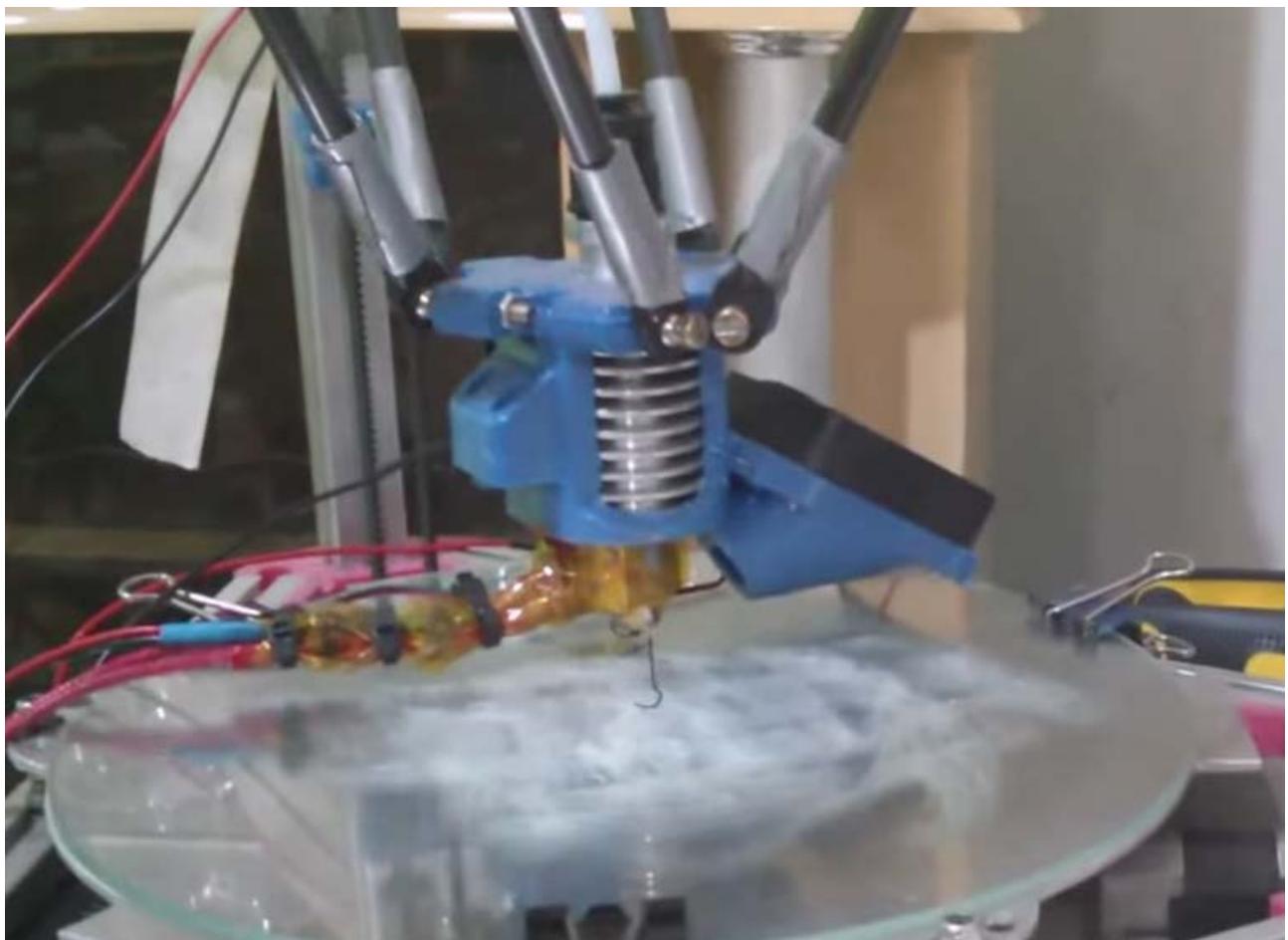
\$14,120 USD total funds raised
1061% funded on May 9, 2016

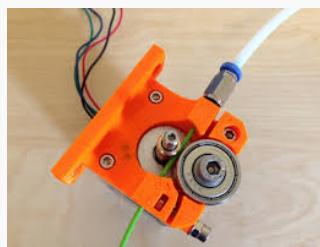


i

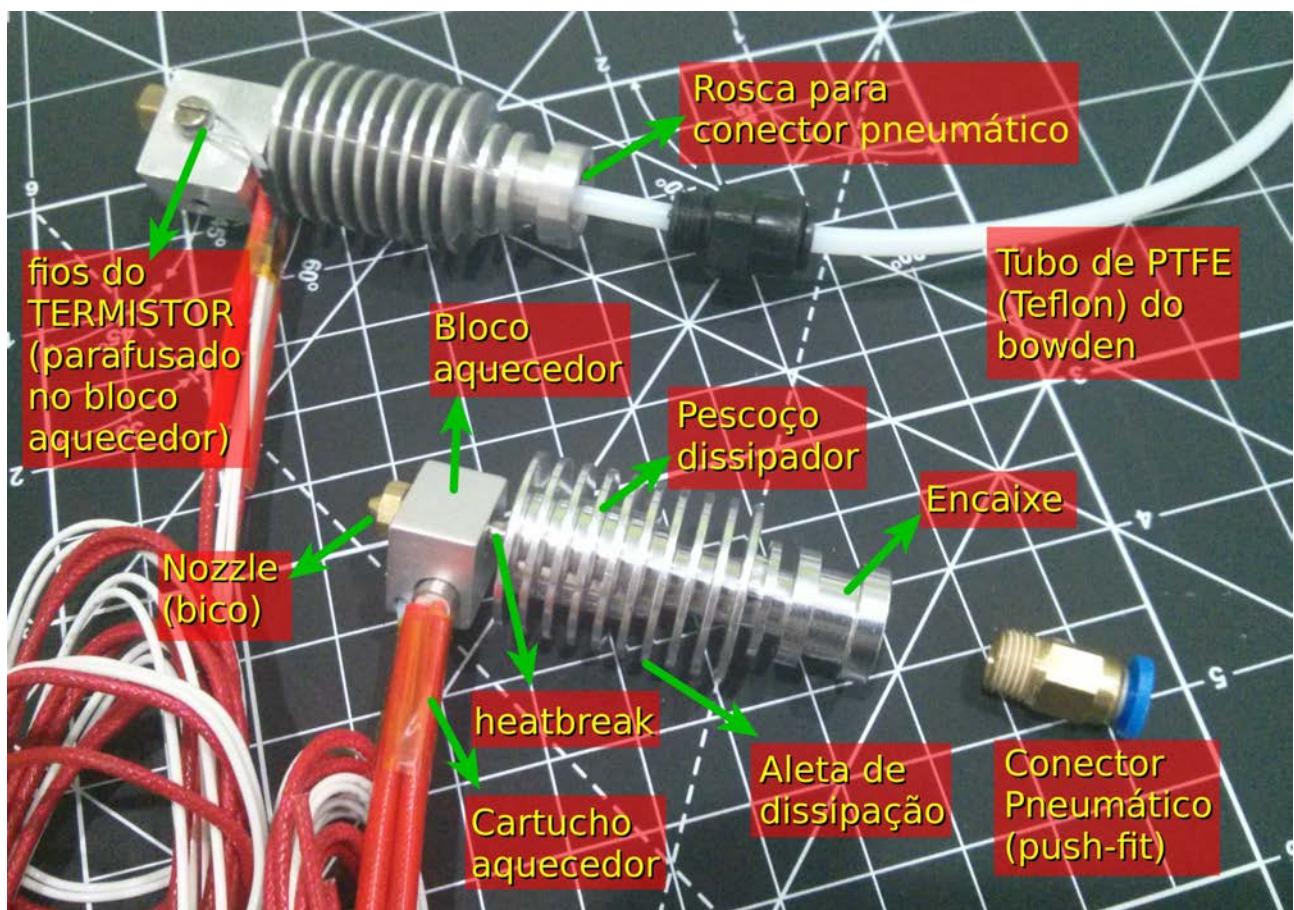








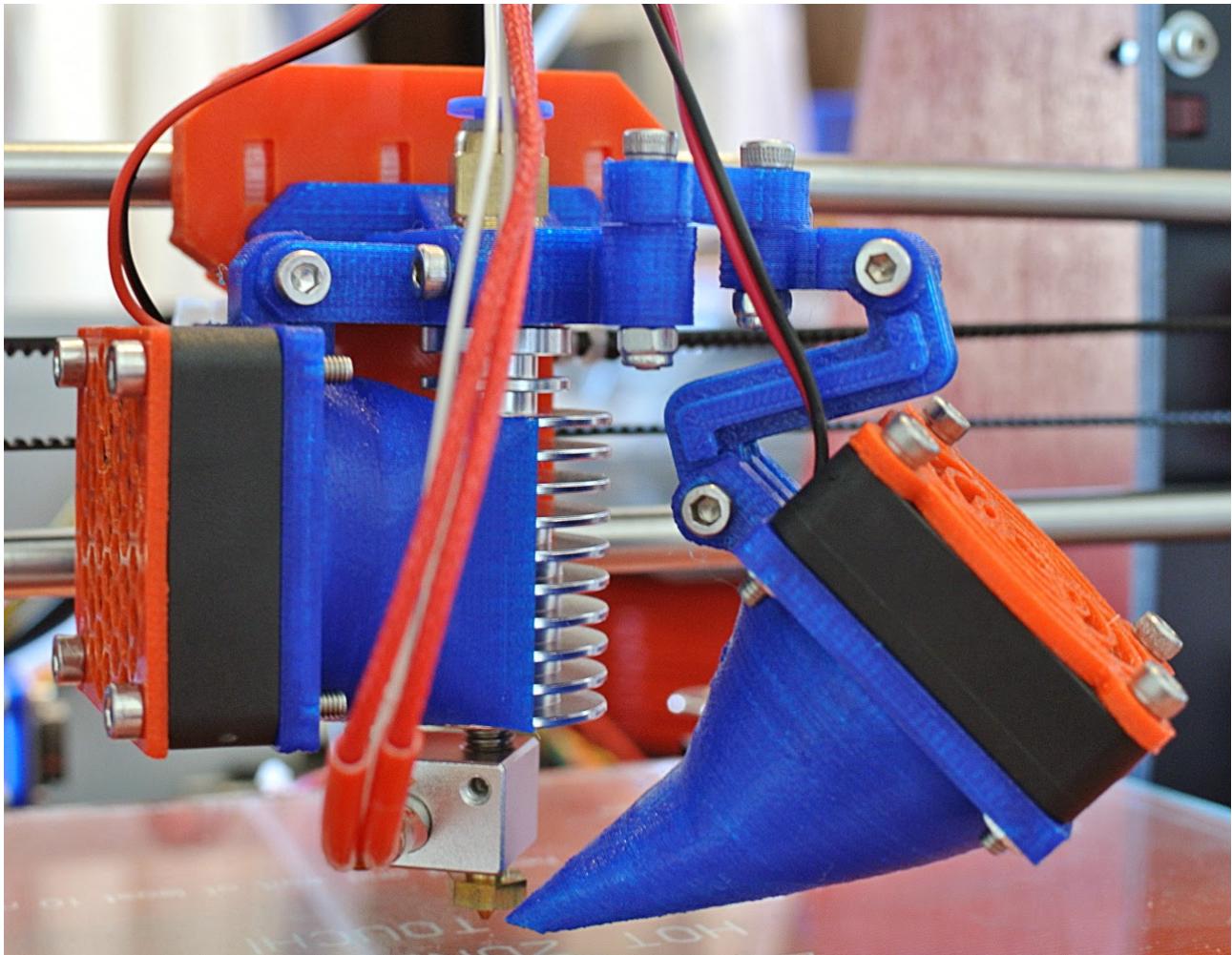




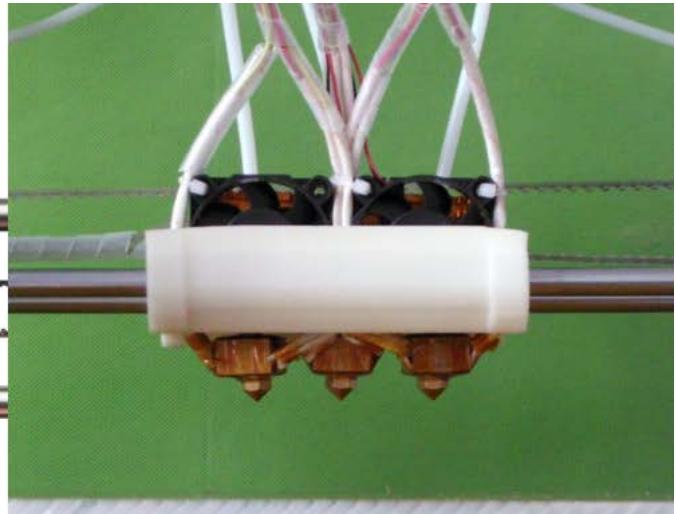
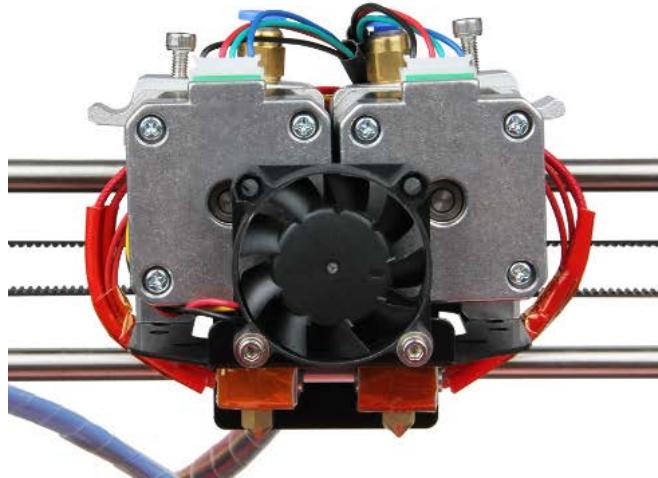


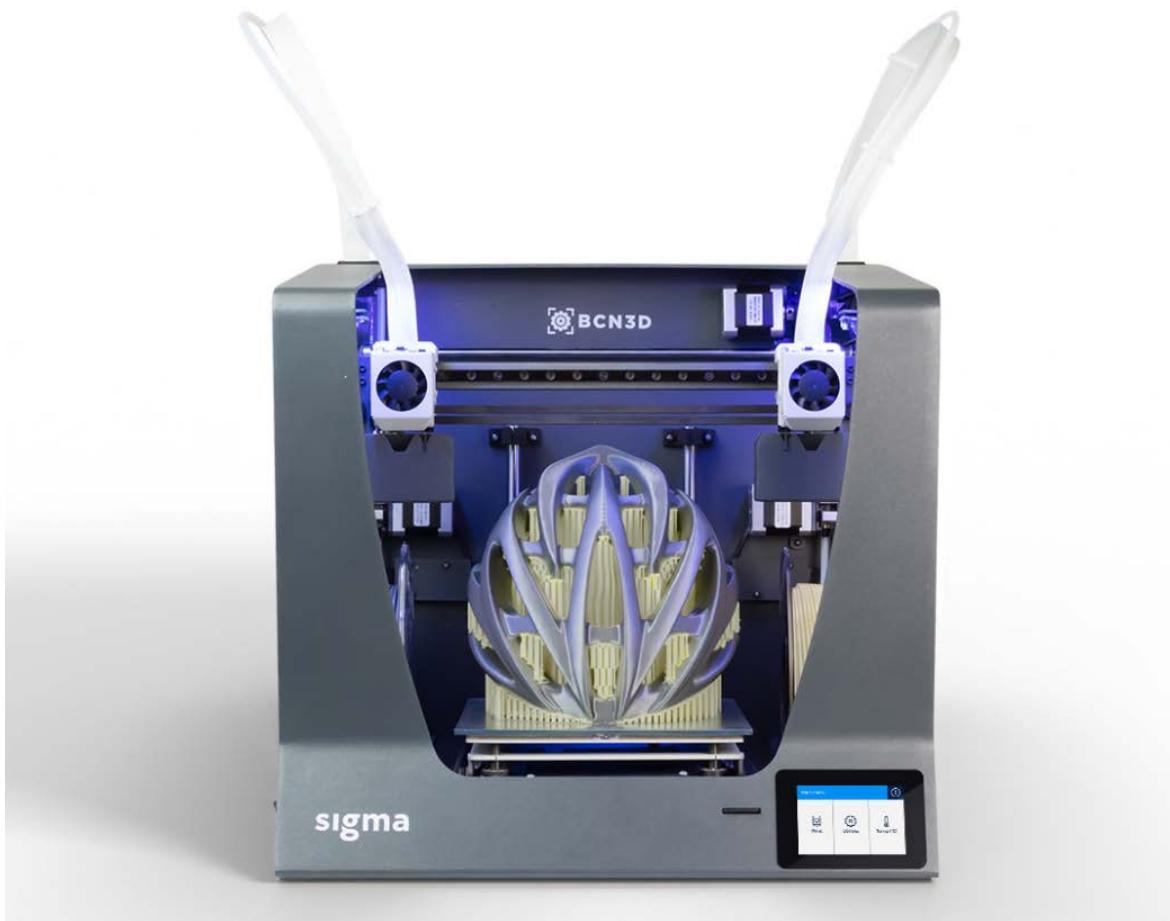


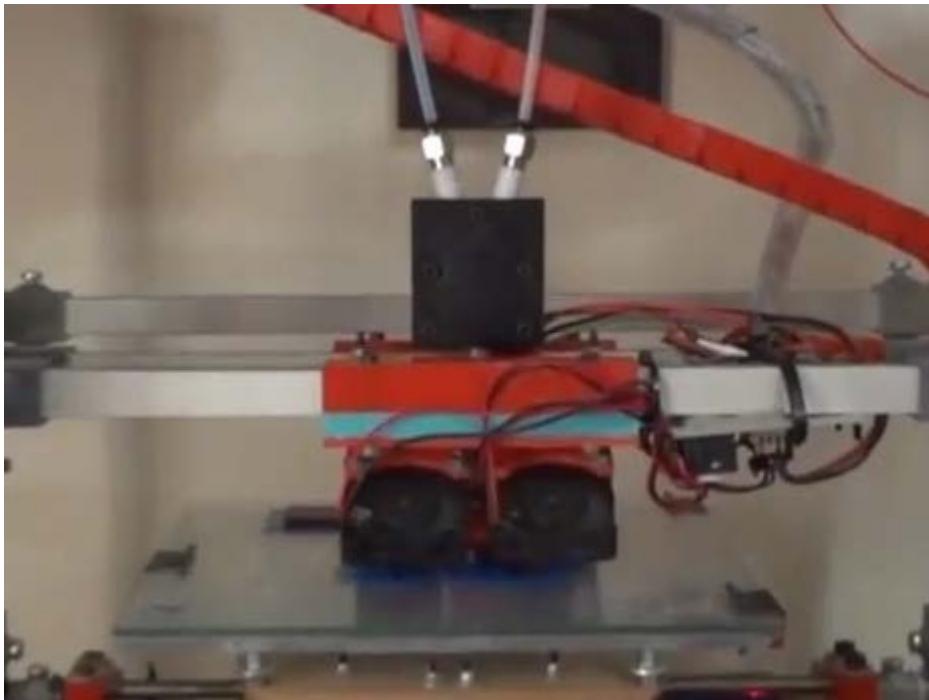


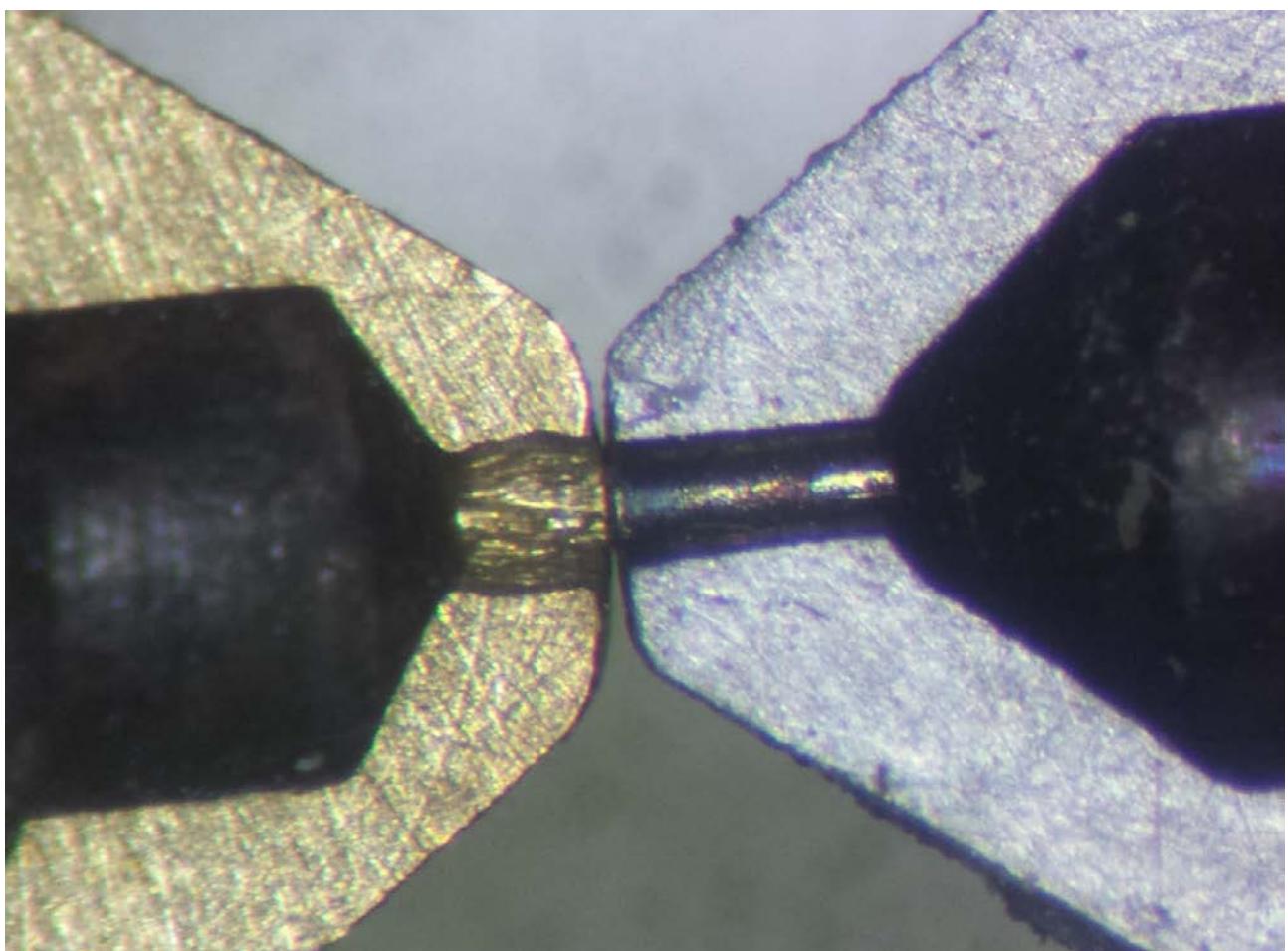


i









3D Printer Tungsten Premium Nozzle Reloaded

by dddmaterial



📍 Frankfurt, Germany 📸 3D Printing

Tungsten Premium Nozzle for precise 3D print results. For abrasive and high temperature print processes where brass & steel fails.

448

backers

€21,960

pledged of €19,500 goal

40

days to go

You're a backer!

You pledged €25.

[Manage](#)

This project will be funded on Tue, Oct 11 2016 1:00 PM BRT.

dddmaterial



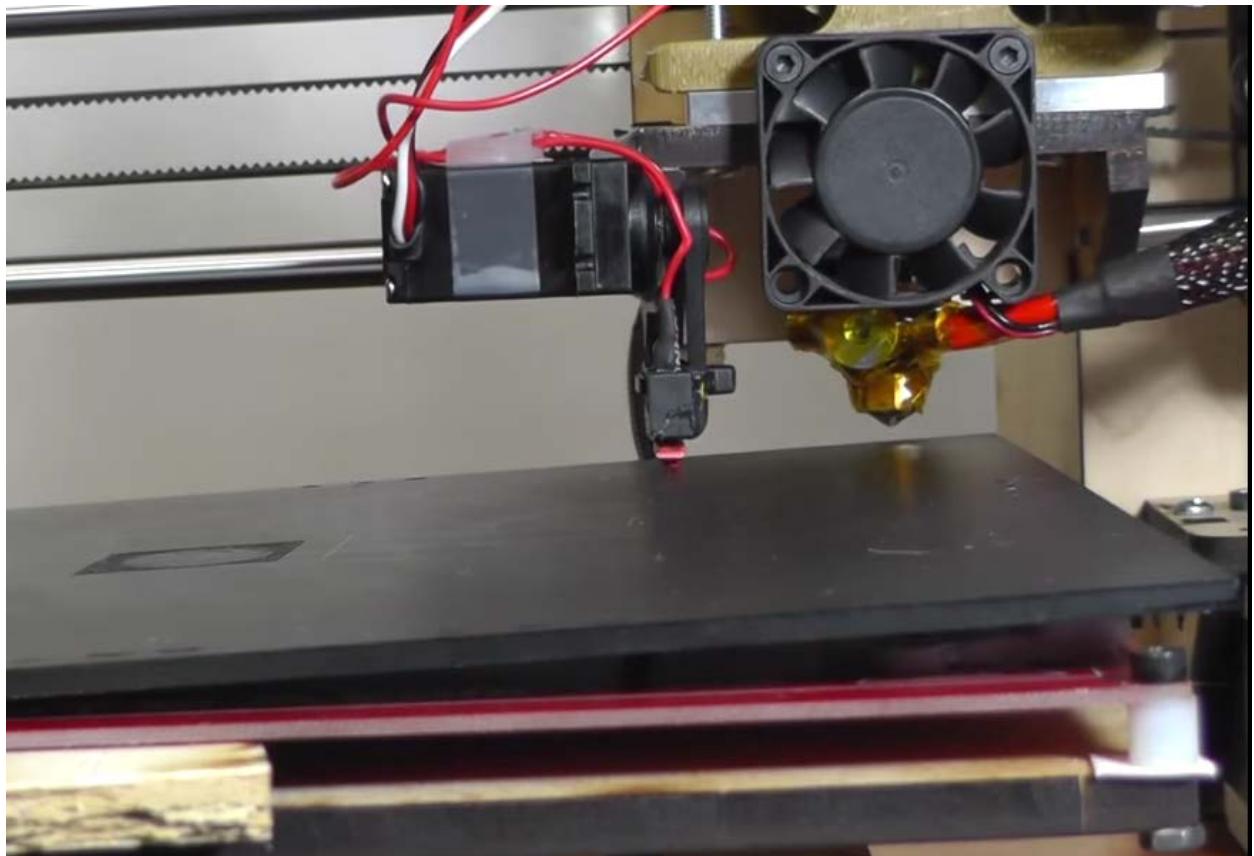
i

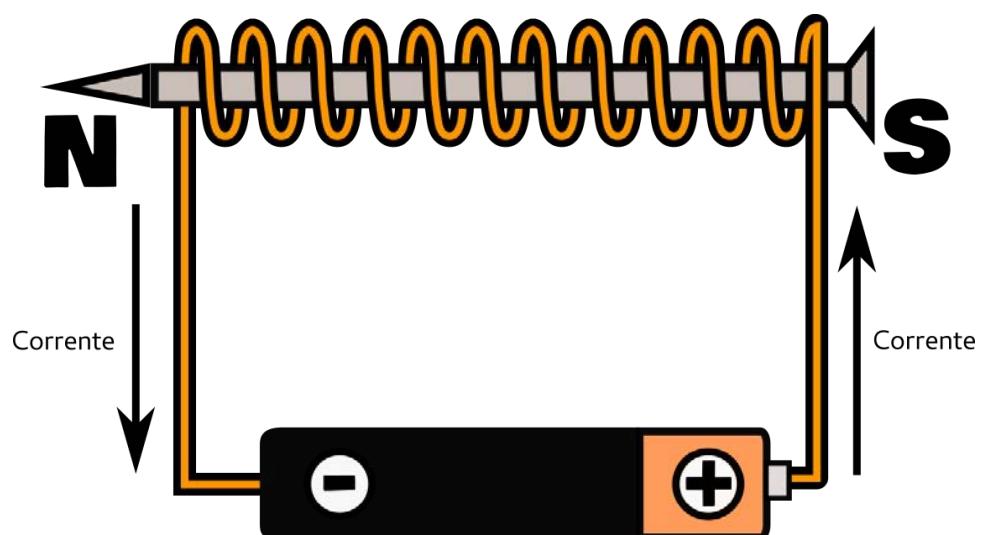
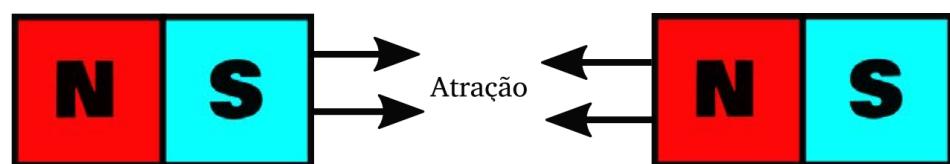


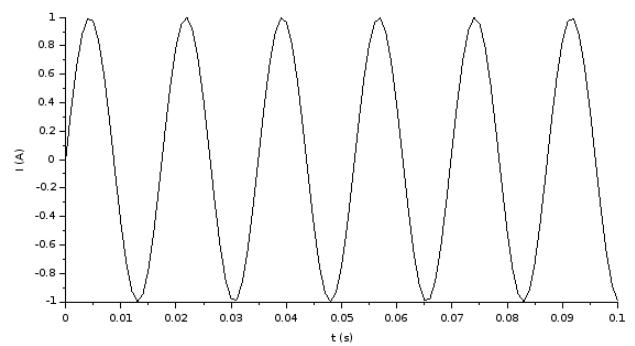
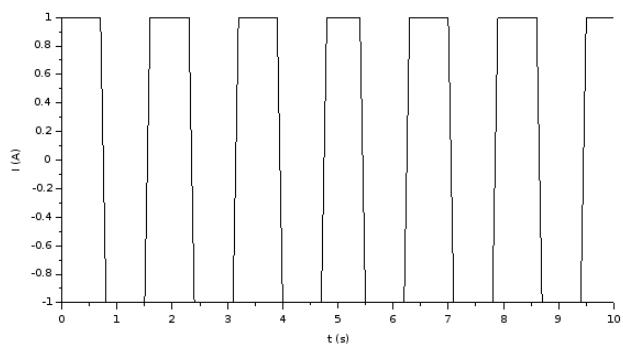
i

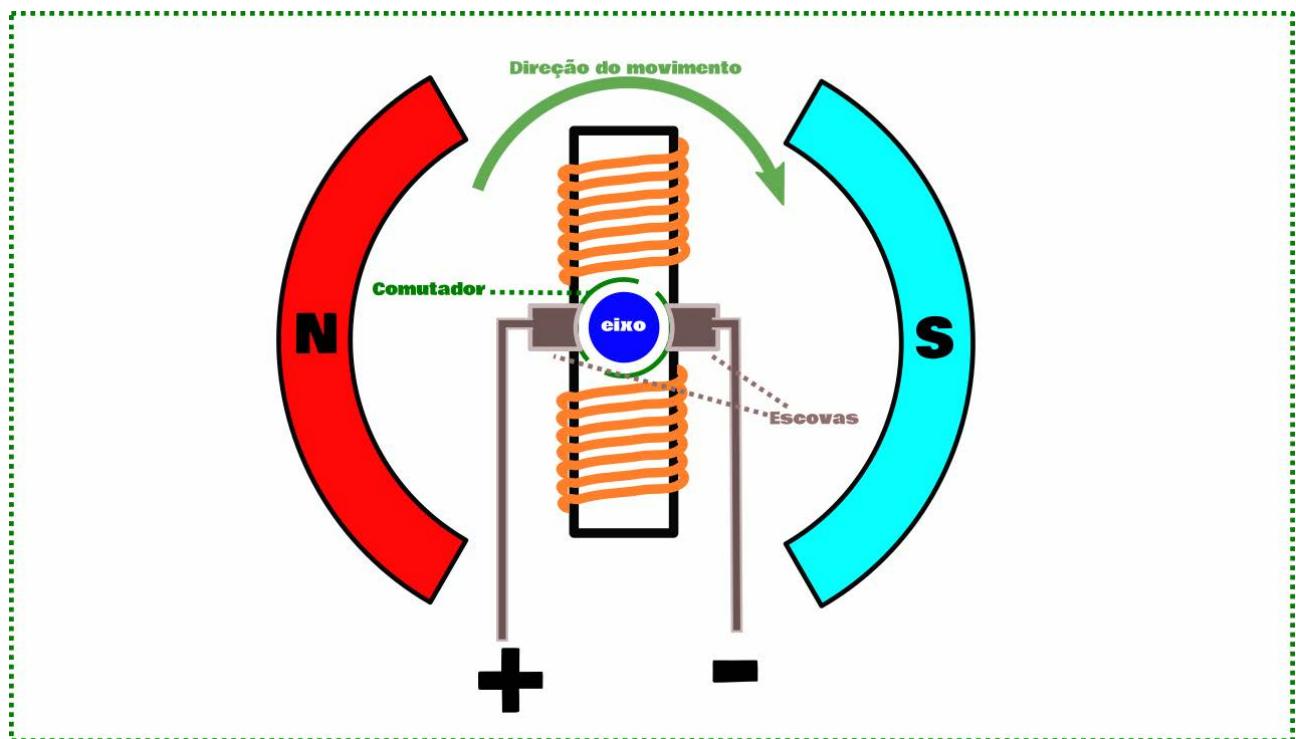


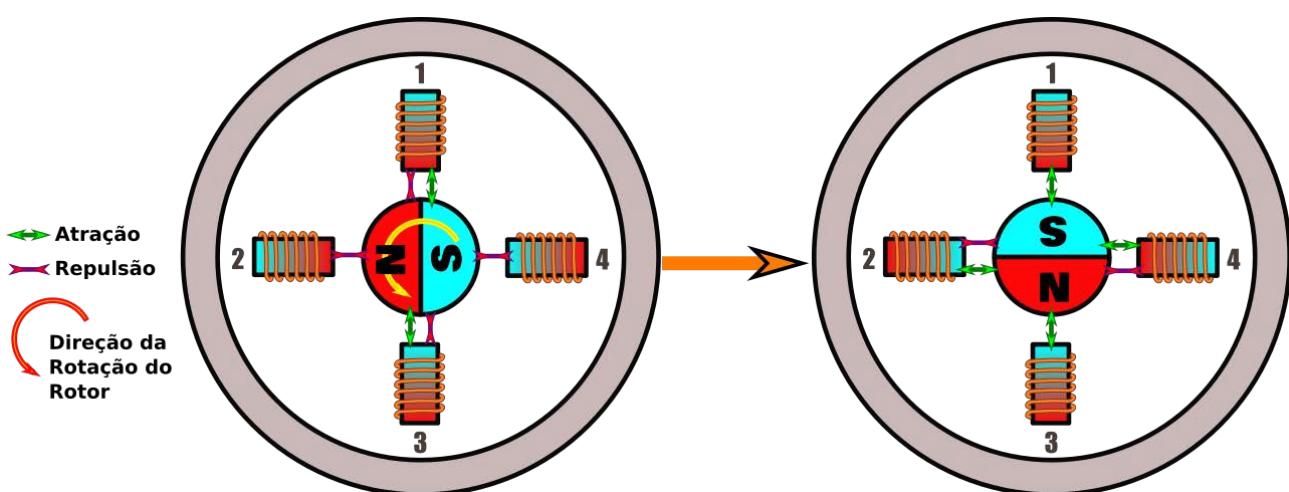
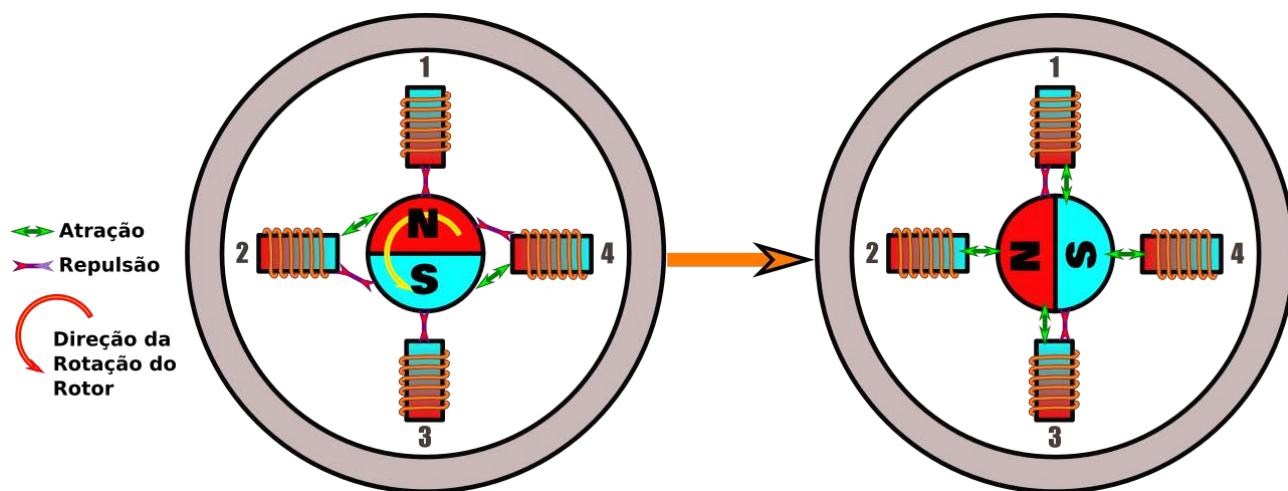


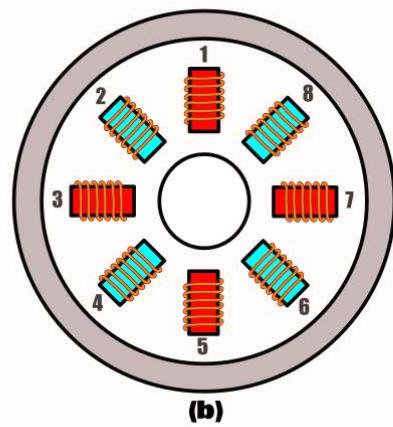
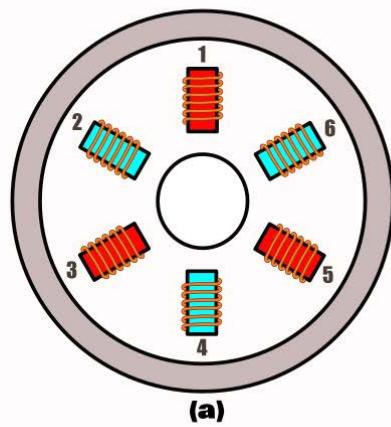
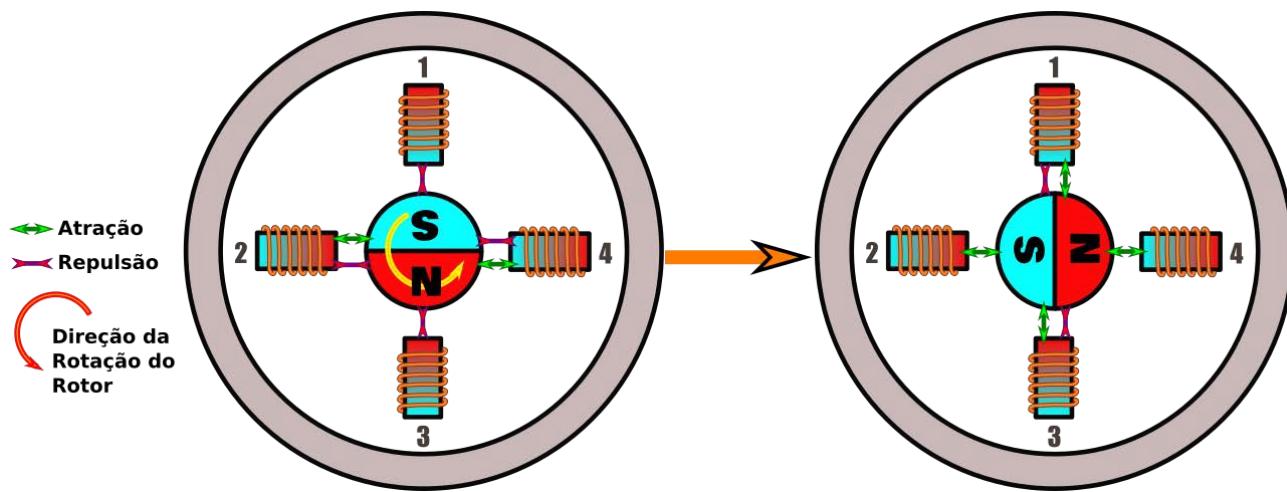




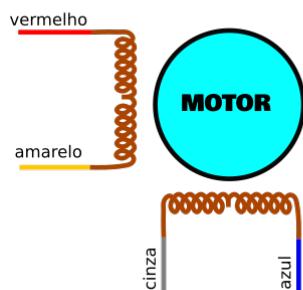




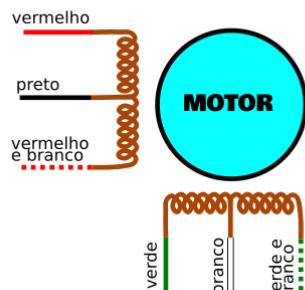




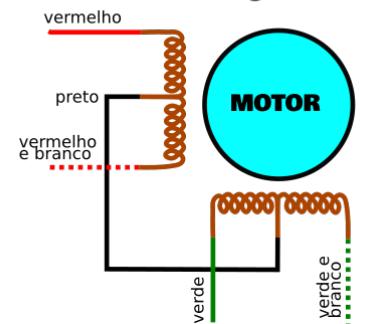
Motor bipolar

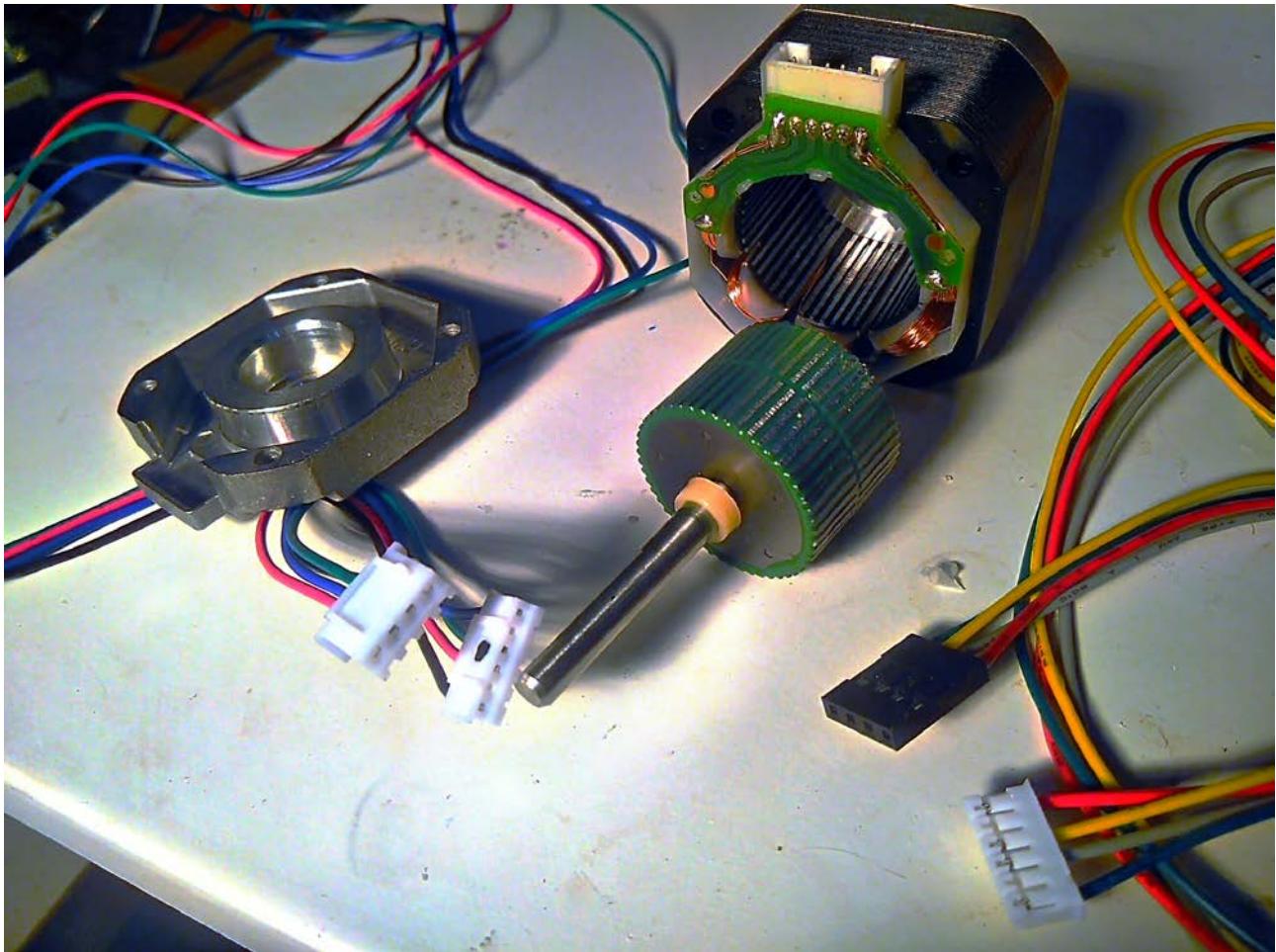


Motor unipolar



**Motor unipolar
com o fio comum
ligado**







3D Printed Stepper Motor V1.1



Proto G

Subscribe 11K

17,823 views

207

1

Add to

Share

More

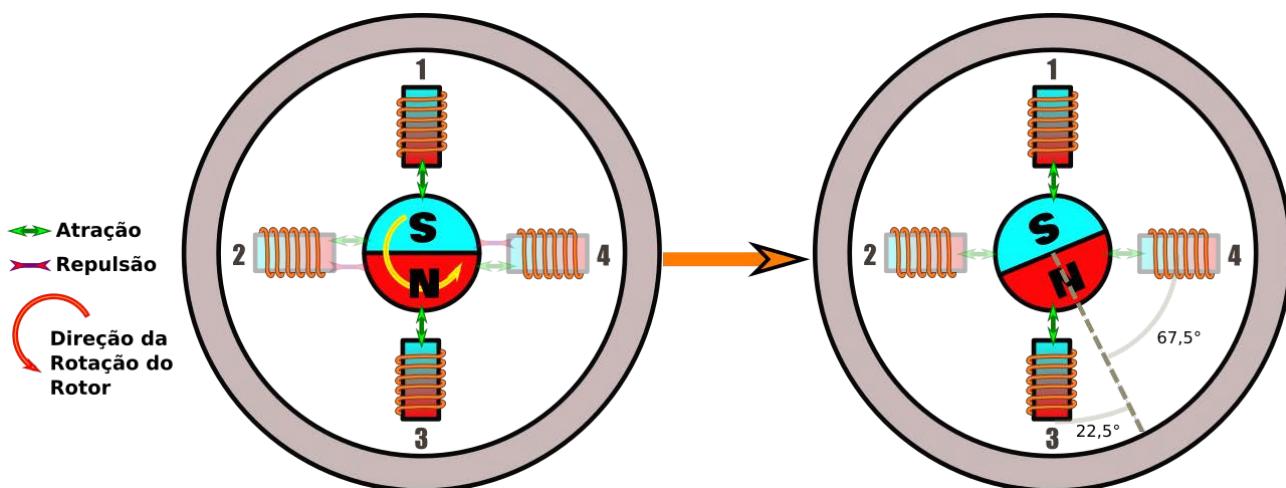
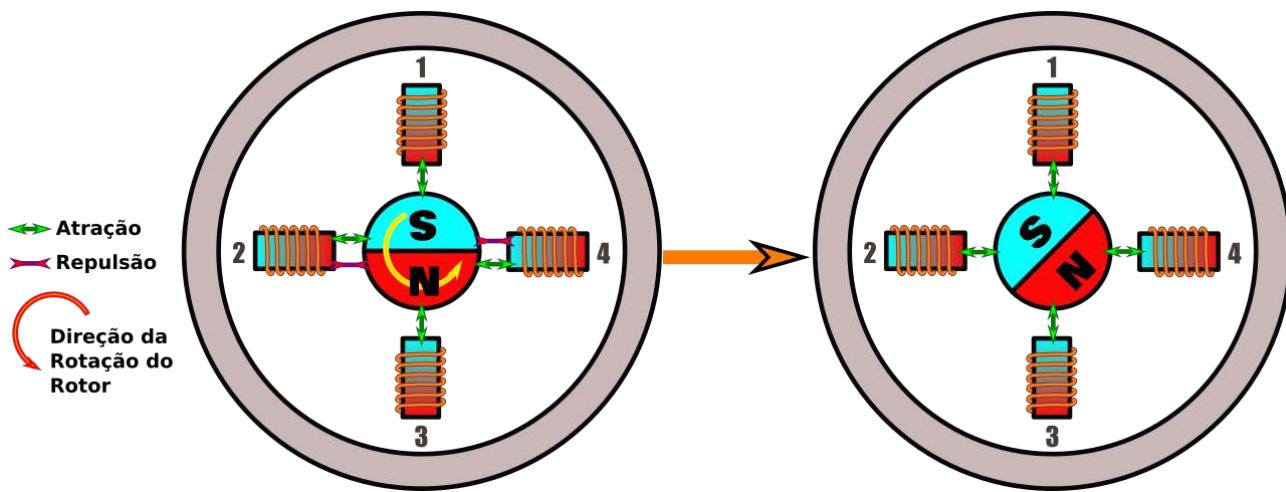
Up next

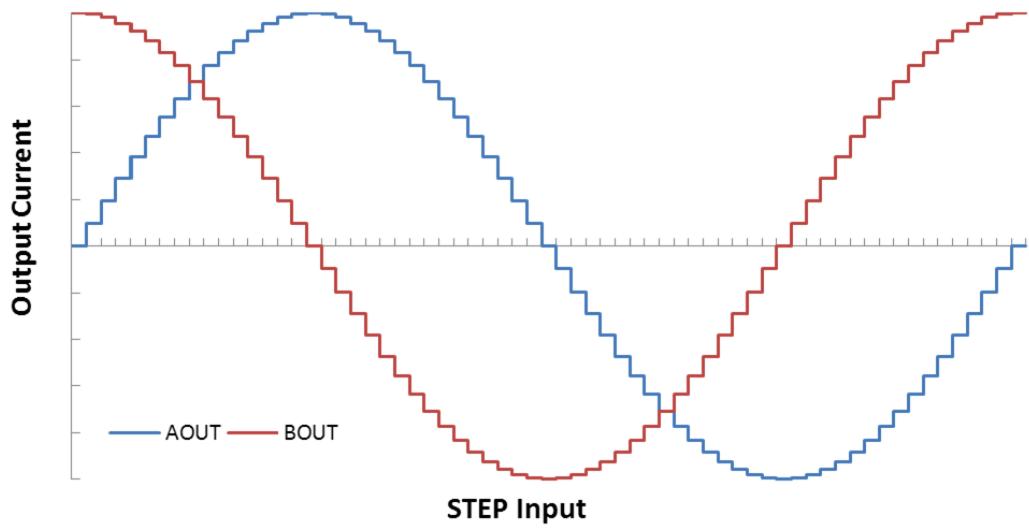


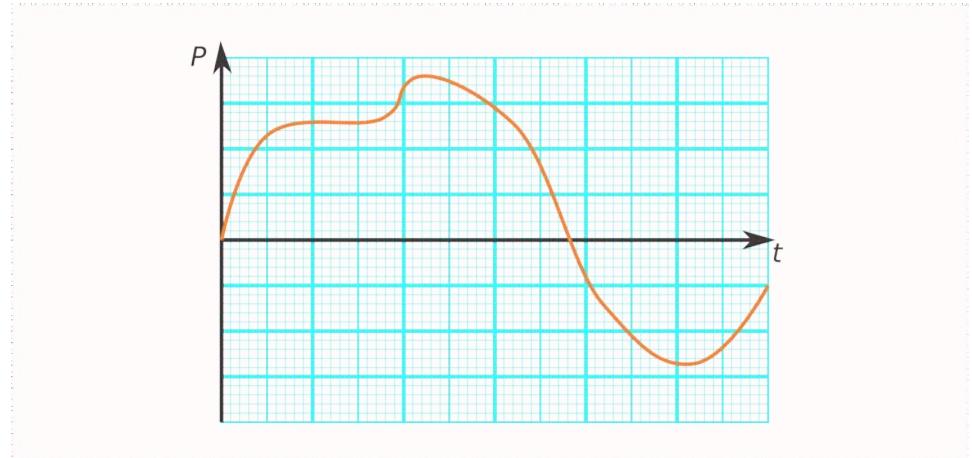
3D Printer stepper mo

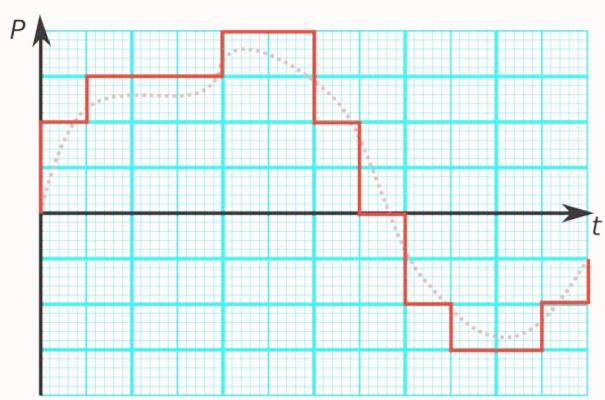
Tech2C
54,026 views

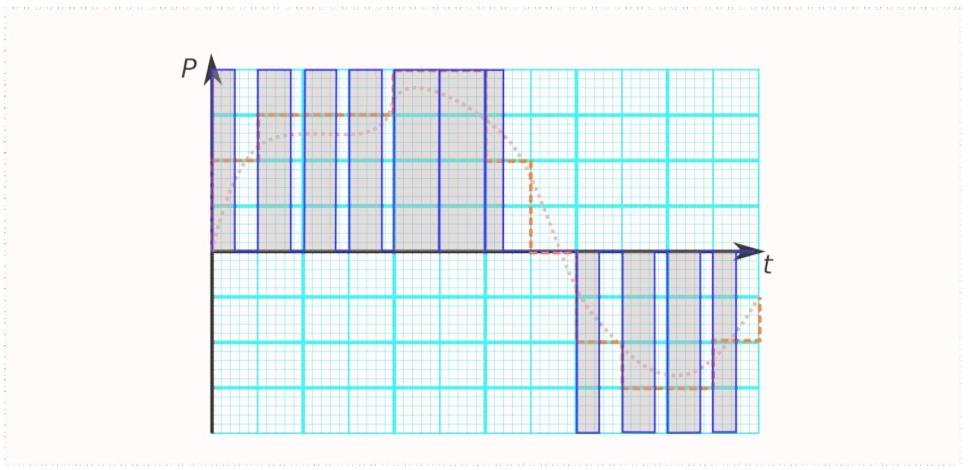
Autoplay





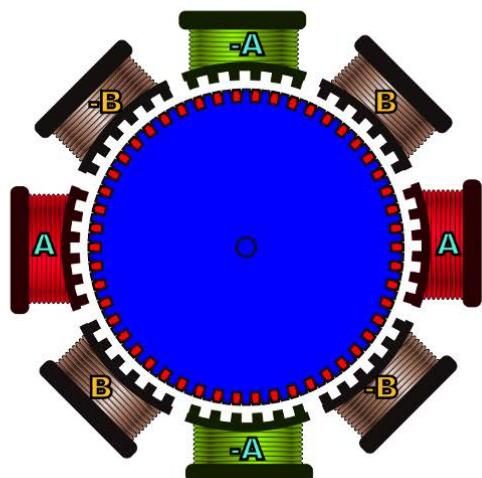
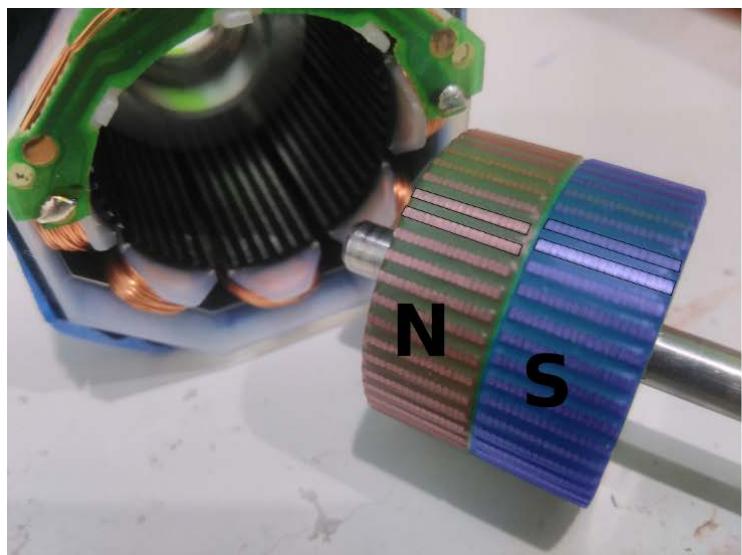
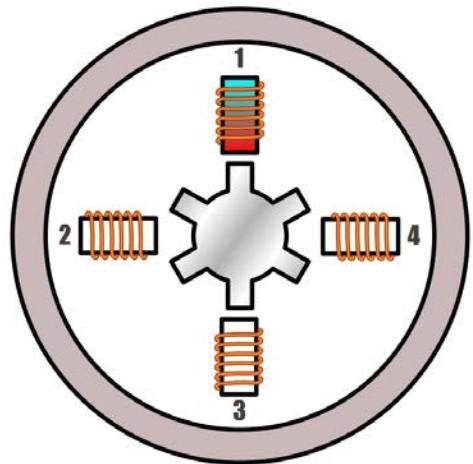






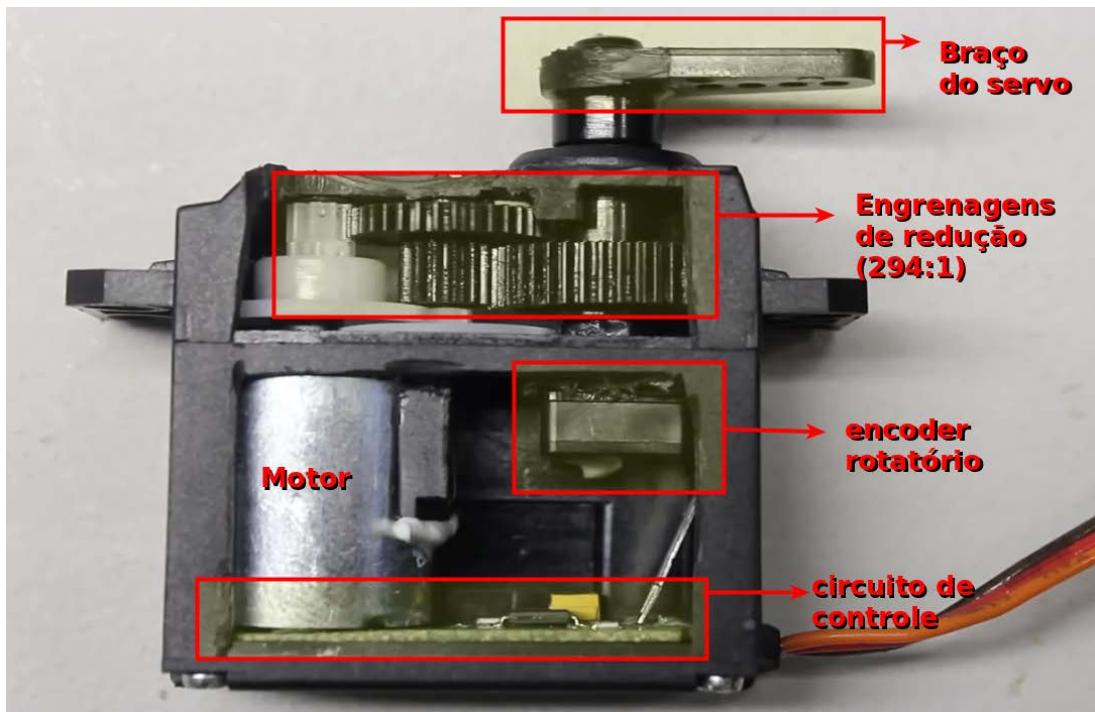
`analogWrite()`







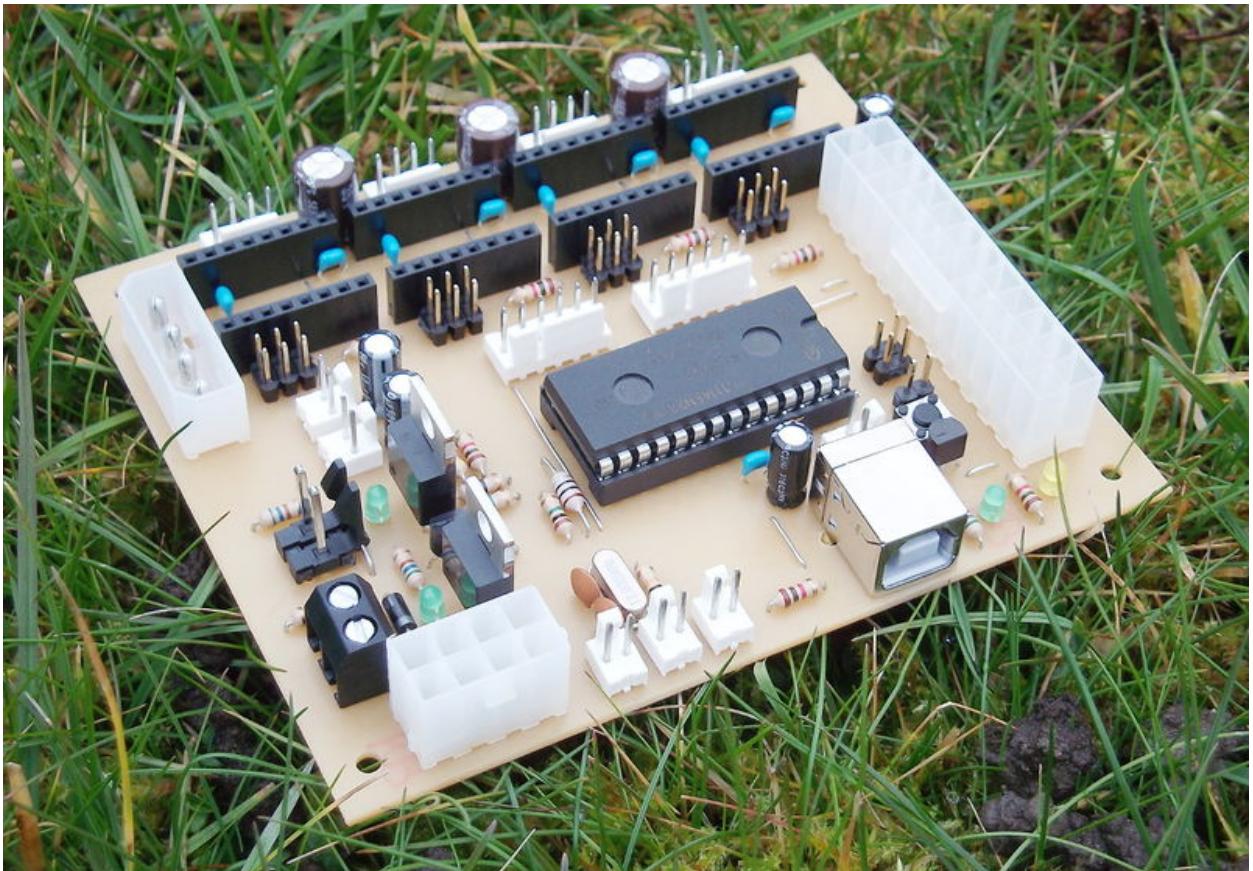






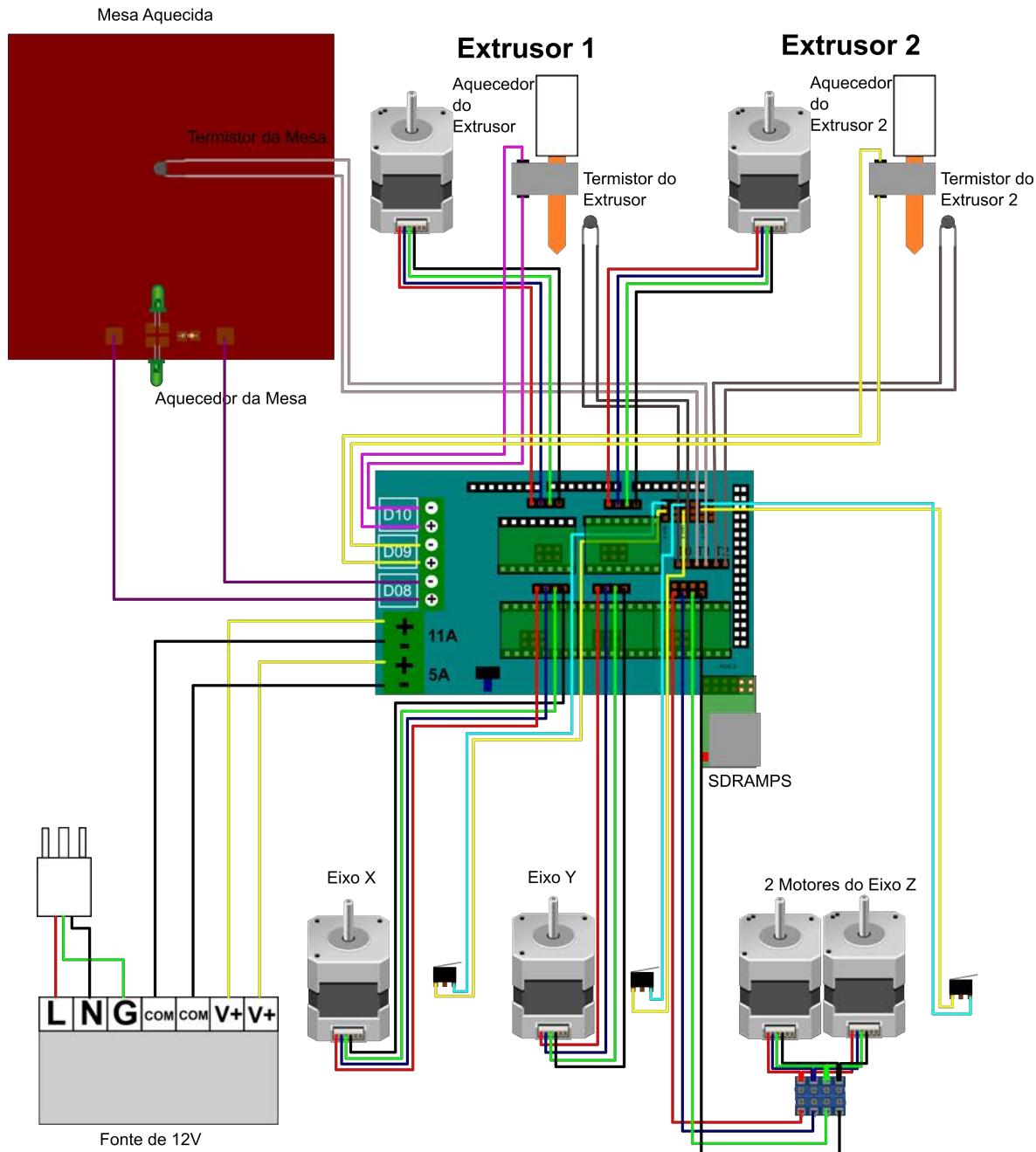


With uStepper feedback



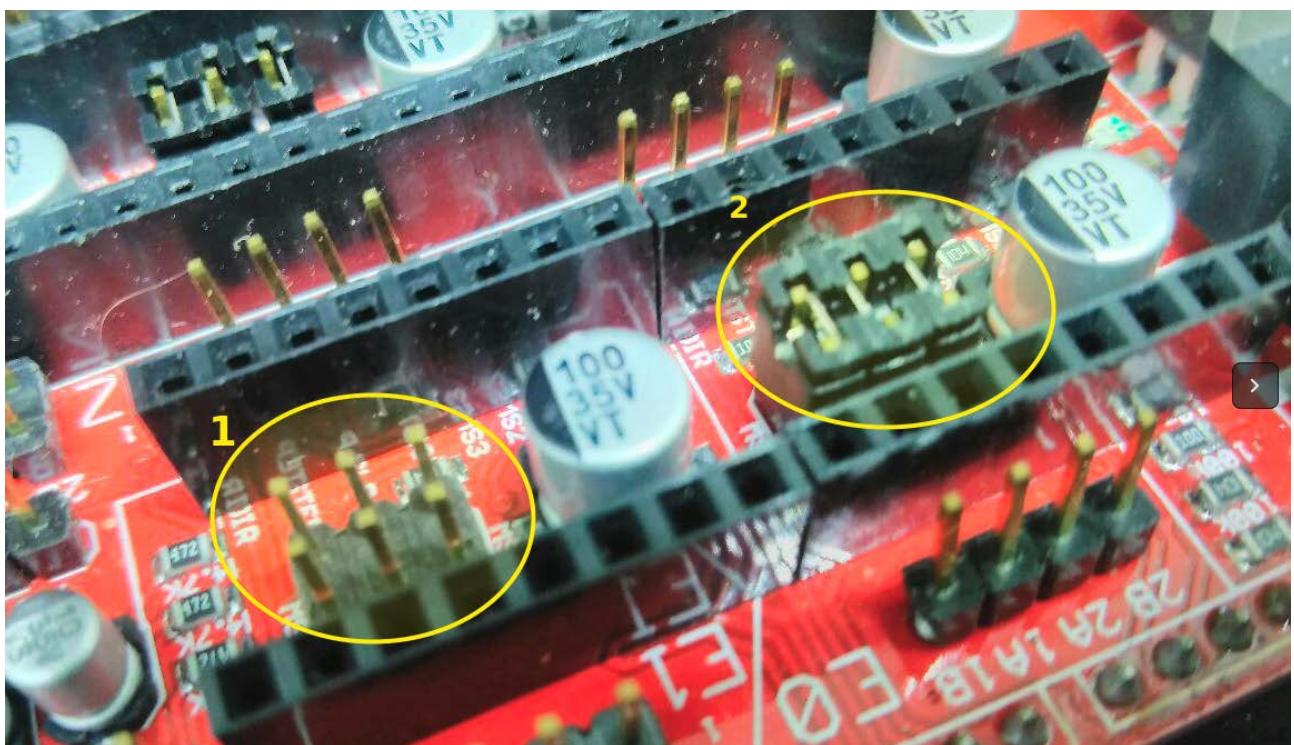


RepRap Arduino Mega Pololu Shield 1.4

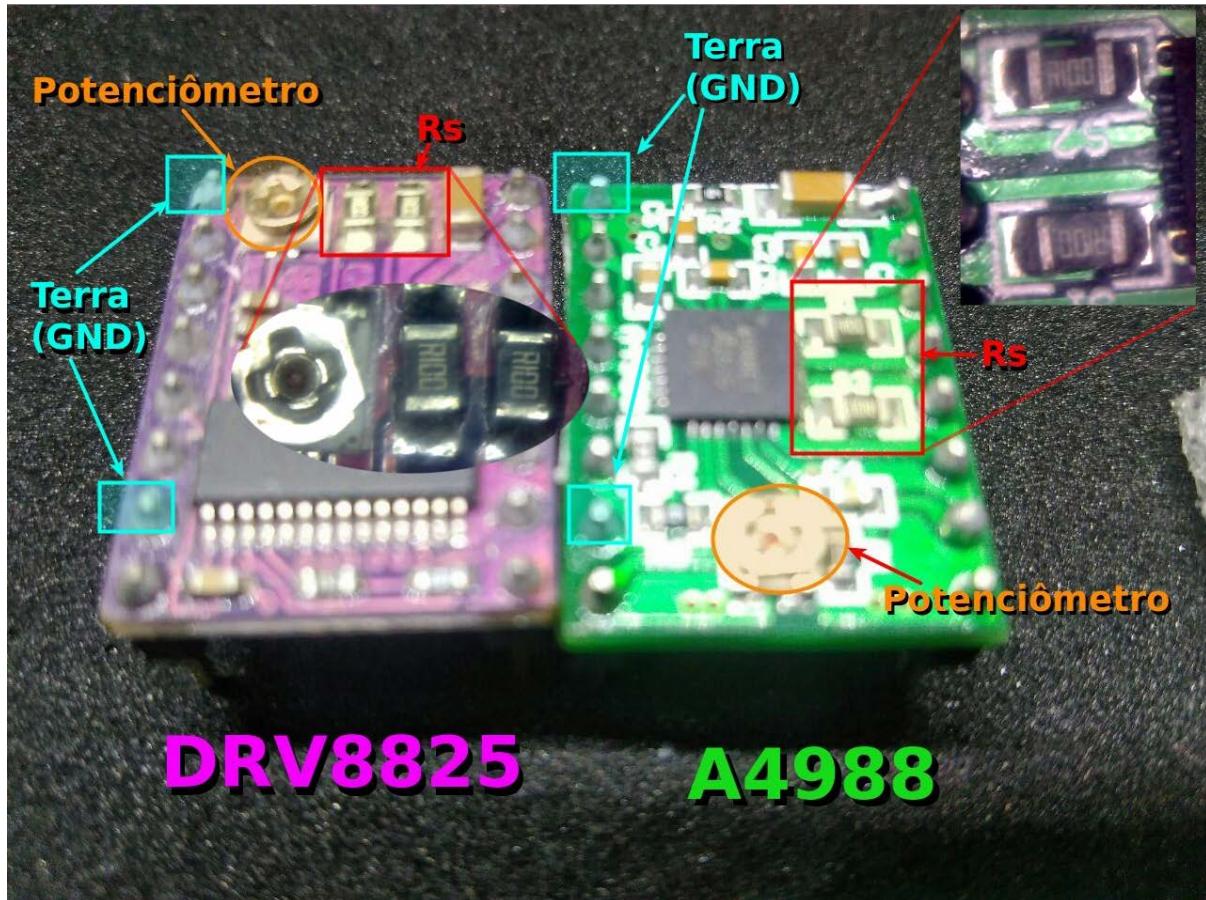


Criado por Neil Underwood 28/5/2011









$$I_{max} = \frac{V_{ref}}{5 \times R_s}$$

$$I_{max} = \frac{V_{ref}}{5 \times 0,1} = \frac{V_{ref}}{0,5} = V_{ref} \times 2$$

$$V_{ref} = \frac{I_{max}}{2}$$

$$V_{ref} = \frac{1,5}{2} = 0,75V$$

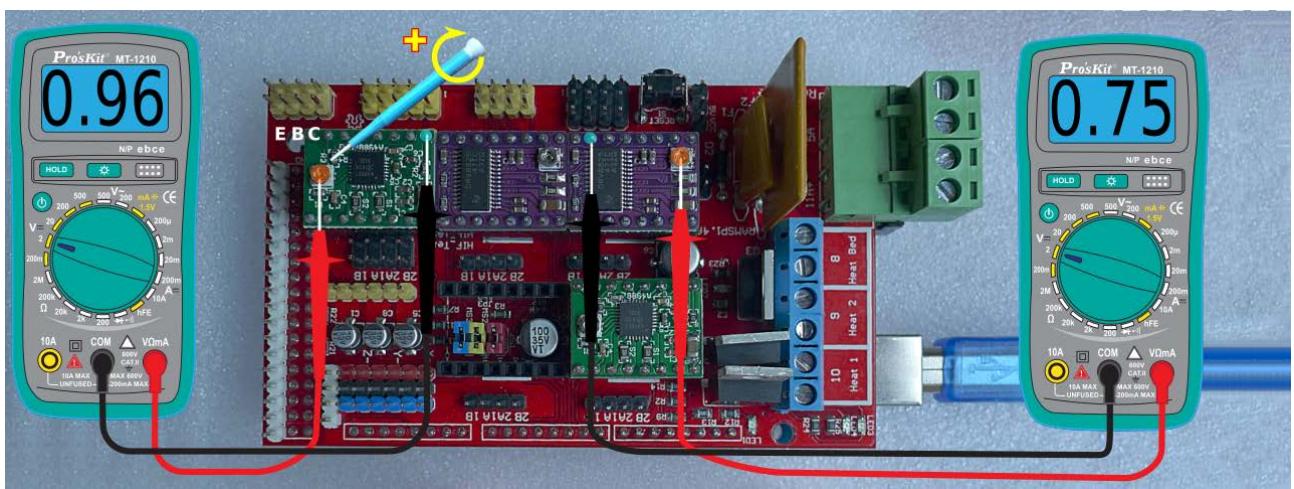
$$I_{max} = \frac{V_{ref}}{8 \times R_S}$$

$$V_{ref} = I_{max} \times 8 \times R_S$$

$$V_{ref} = 1,2 \times 8 \times 0,1 = 0,96V$$

Tensão	Driver	Sense resistor	Corrente Desejada (mA)														
			100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
A4988	R050 (0.05 ohms)	0,040	0,080	0,120	0,160	0,200	0,240	0,280	0,320	0,360	0,400	0,440	0,480	0,520	0,560	0,600	
	R100 (0.1 ohms)	0,080	0,160	0,240	0,320	0,400	0,480	0,560	0,640	0,720	0,800	0,880	0,960	1,040	1,120	1,200	
	R200 (0.2 ohms)	0,160	0,320	0,480	0,640	0,800	0,960	1,120	1,280	1,440	1,600	1,760	1,920	2,080	2,240	2,400	
DRV8825	R100 (0.1 ohms)	0,050	0,100	0,150	0,200	0,250	0,300	0,350	0,400	0,450	0,500	0,550	0,600	0,650	0,700	0,750	

		$V_{ref} = I_{max} \times 8 \times R_S$		
		$V_{ref} = I_{max} / 2$		
		$V_{ref} = I_{max} / 2$		
		$V_{ref} = I_{max} / 1,9$		
		$V_{ref} = I_{max}$		
		$V_{ref} = I_{max} / 2$		
		$V_{ref} = I_{max} / 2$		

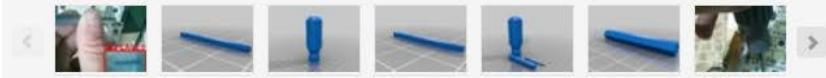
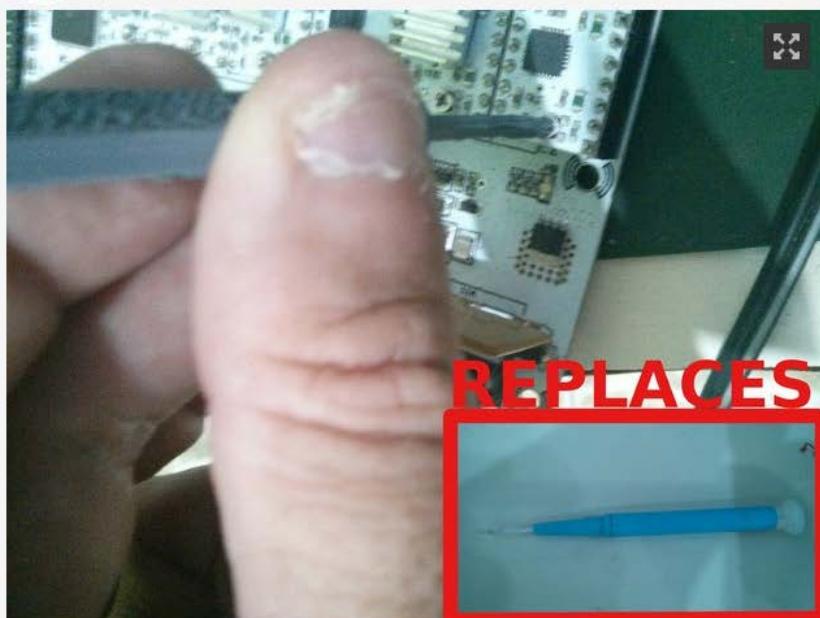




Stepper driver trimpot aligner / screwdriver tool

by Patola, published Oct 19, 2015

[EDIT THING](#)



[DOWNLOAD ALL FILES](#)



Like

64



Collect

92



Comment

0



I Made One

0



Remix It

3



Share

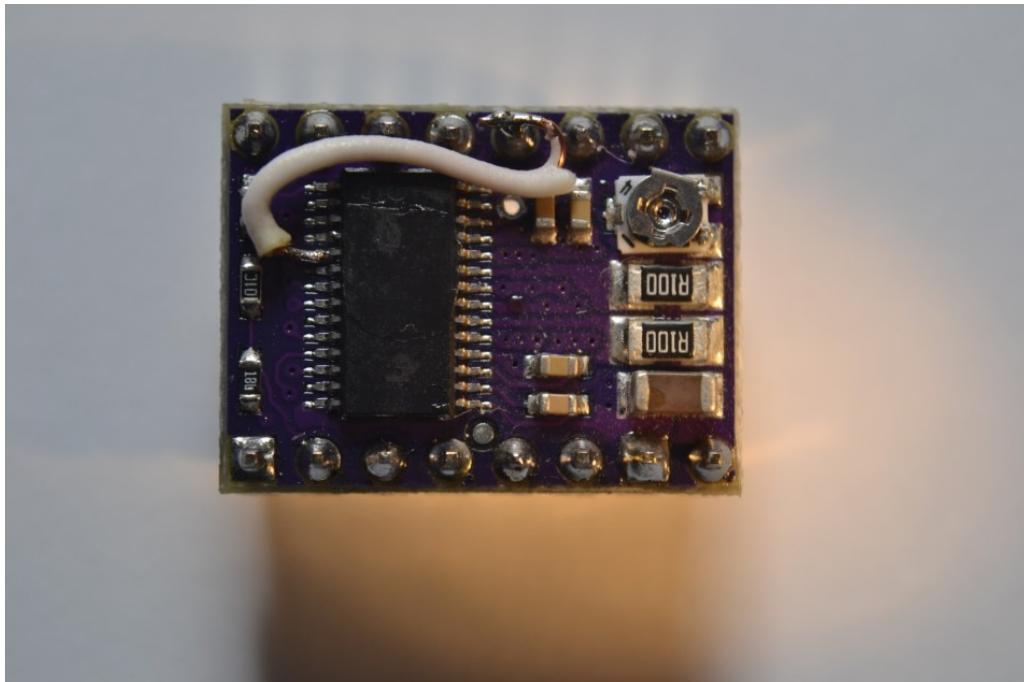
Thing Apps Enabled

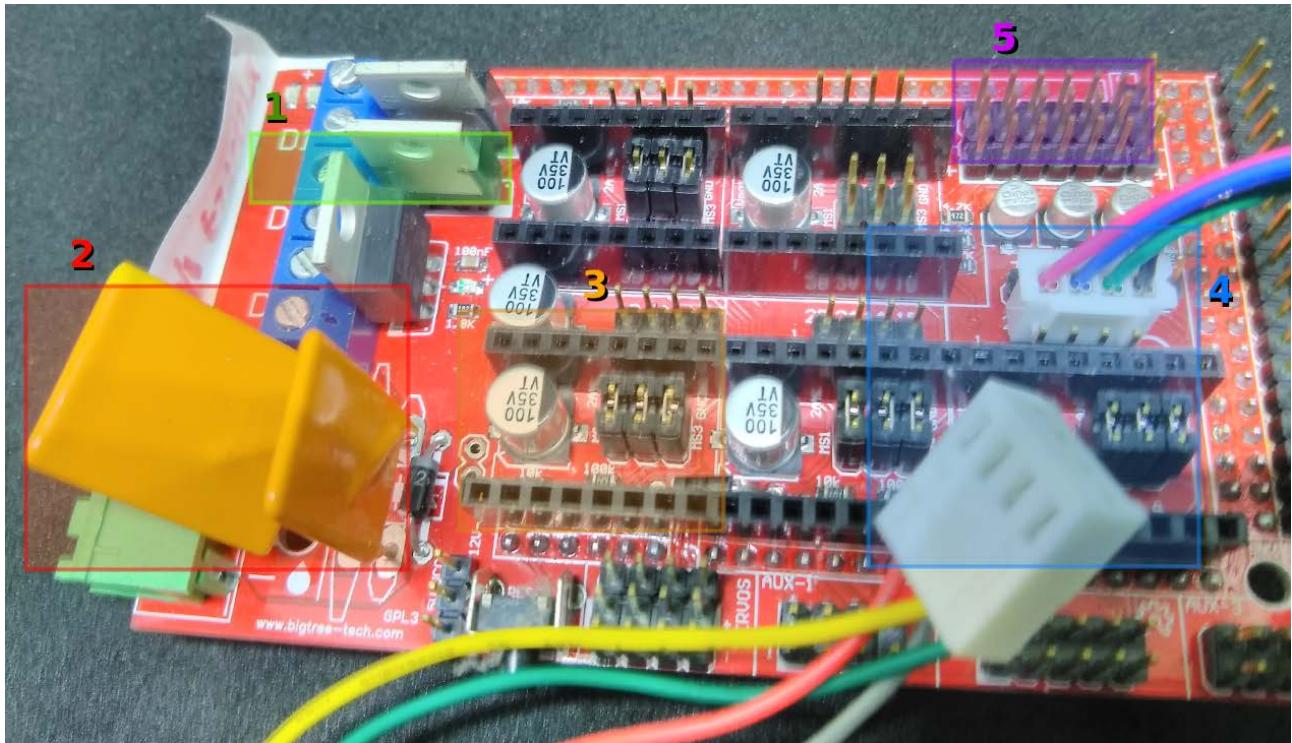


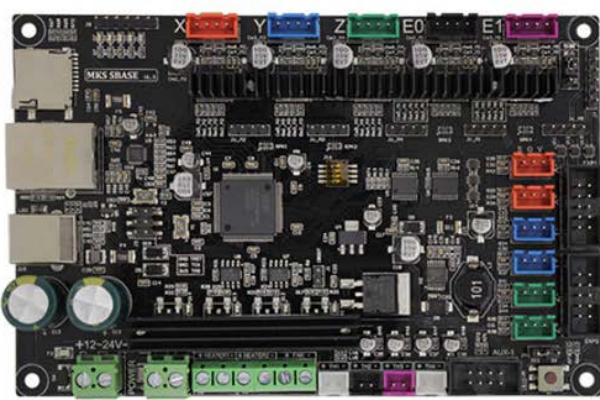
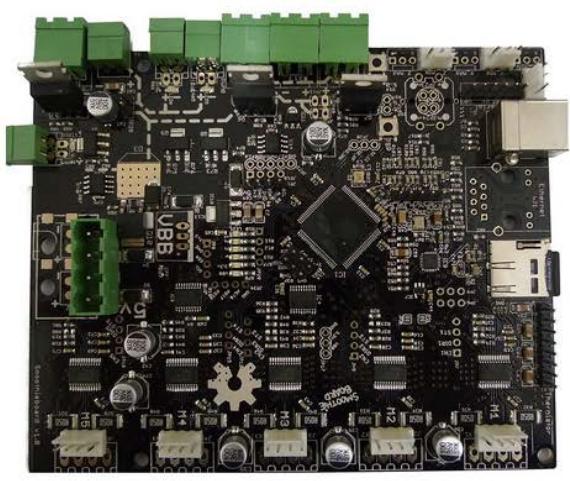
[Order This Printed](#)



[View All Apps](#)









PRODUCTS

- Controllers >
- 3D Printer and CNC parts >
- LCDs and Displays >
- Cables and wires >
- Sensors >
- Shields and Carriers >
- Accessories >

RESOURCES

- Blog >
- FORUMS >
- ARTICLES >



Panucatt ...

Liked

Home > Controllers >

Re-ARM Controller for RAMPS



+ Larger Photo

Email a Friend



Like 45

Share

Alternative Views:



List Price: \$45.00

Price: \$45.00

Quantity in Stock: 37

Availability: Usually Ships in 1 to 2 Business Days

Product Code: RA1768

Choose your options...

Connectivity
options:

LAN Board [Add \$12.00] ▾

Stepper
Drivers:

4pcs SD6128 w/ Heatsink [Add \$32.00] ▾

LCD cable:

For RRD Graphic LCD [Add \$1.50] ▾

Qty: 1

Add to cart ▶

★ Add to Wish List ▶

Description

RE-ARM is a 100Mhz, 32-bit ARM controller with the popular Arduino MEGA footprint. It's a plug-in replacement for the Arduino Mega in your RAMPS setup for a quick and easy upgrade to 32-bit goodness.

It runs the awesome Smoothieware firmware by Arthur Wolf.

The screenshot shows the Arduino IDE interface with the following details:

- Title Bar:** Blink | Arduino 1.6.12
- Menu Bar:** File Edit Sketch Tools Help
- Toolbar:** Includes icons for Open, Save, Print, and Upload.
- Sketch Name:** Blink
- Code Area:** Contains the standard Blink sketch code.

```
/*
Blink
Turns on an LED on for one second, then off for one second, repeatedly.

*/
// the setup function runs once when you press reset or power the board
void setup() {
    // initialize digital pin LED_BUILTIN as an output.
    pinMode(LED_BUILTIN, OUTPUT);
}

// the loop function runs over and over again forever
void loop() {
    digitalWrite(LED_BUILTIN, HIGH);      // turn the LED on (HIGH is the voltage level)
    delay(1000);                         // wait for a second
    digitalWrite(LED_BUILTIN, LOW);       // turn the LED off by making the voltage LOW
    delay(1000);                         // wait for a second
}
```
- Status Bar:** Uploading... (orange progress bar)
- Message Area:** Sketch uses 928 bytes (2%) of program storage space. Maximum is 32,256 bytes.
Global variables use 9 bytes (0%) of dynamic memory, leaving 2,039 bytes for local variables. Maximum is 2,048 bytes.
- Page Number:** 20
- Build Information:** Arduino/Genuino Uno on /dev/ttyACM0

```
Marlin - MarlinSerial.h | Arduino 1.6.12
File Edit Sketch Tools Help
Marlin Conditional.h Conditional_LCD.h Conditional_post.h Configuration.h Configuration_adv.h M100_Free_Mem_Clk.cpp Marlin.h MarlinConfig.h MarlinSerial.cpp
/*
 * Marlin 3D Printer Firmware
 * Copyright (C) 2016 MarlinFirmware (https://github.com/MarlinFirmware/Marlin)
 * Based on Sprinter and grbl.
 * Copyright (C) 2011 Camiel Gubbels / Erik van der Zale
 *
 * This program is free software: you can redistribute it and/or modify
 * it under the terms of the GNU General Public License as published by
 * the Free Software Foundation, either version 3 of the License, or
 * (at your option) any later version.
 *
 * This program is distributed in the hope that it will be useful,
 * but WITHOUT ANY WARRANTY; without even the implied warranty of
 * MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
 * GNU General Public License for more details.
 *
 * You should have received a copy of the GNU General Public License
 * along with this program. If not, see <http://www.gnu.org/licenses/>.
 */
/*
 * MarlinSerial.h - Hardware serial library for wiring
 * Copyright (c) 2006 Nicholas Zambetti. All rights reserved.
 * Modified 20 September 2010 by Mark Sprout
 * Modified 14 February 2016 by Andreas Hardtung (added tx buffer)
 */
#ifndef MarlinSerial_h
#define MarlinSerial_h

#include "MarlinConfig.h"

#ifndef SERIAL_PORT
#define SERIAL_PORT 0
#endif

// The presence of the UBR9H register is used to detect a USART
#define USART_PRESENT(port) ((port == 0 && (defined(UBR9H) || defined(UBR9L))) || \
                           (port == 1 && defined(UBR9L)) || (port == 2 && defined(UBR9H)) || \
                           (port == 3 && defined(UBR9H)))

// These are macros to build serial port register names for the selected SERIAL_PORT (C preprocessor
// requires two levels of indirection to expand macro values properly)
#define _CPORT_(PORTNAME) (port##PORTNAME##.number##PORTNAME##.number##PORTNAME)
#define _CPORT_(PORTNAME) (port##PORTNAME##.number##PORTNAME##.number##PORTNAME)

Sd2Card.h
SdBaseFile.cpp
SdBaseFile.h
SdFatConfig.h
SdFatStructs.h
SdFatUtil.cpp
SdFatUtil.h
SdFile.cpp
SdFile.h
SdInfo.h
SdVolume.cpp
SdVolume.h
Version.h
blinkm.cpp
blinkm.h
boards.h
buzzer.h
cardreader.cpp
cardreader.h
circularqueue.h
configuration_store.cpp
configuration_store.h
dac_mcp4728.cpp
dac_mcp4728.h
digipot_mcp4451.cpp
dogm_bitmaps.h
dogm_font_data_6x9_marlin.h
dogm_font_data_HD44780_C.h
dogm_font_data_HD44780_J.h

9
Arduino/Genuino Mega or Mega 2560, ATmega2560 (Mega 2560) on /dev/ttyACM0
```



```
//  
// LCD LANGUAGE  
//  
// Here you may choose the language used by Marlin on the LCD menus, the following  
// list of languages are available:  
// en, an, bg, ca, cn, cz, de, el, el-gr, es, eu, fi, fr, gl, hr, it,  
// kana, kana_utf8, nl, pl, pt, pt_utf8, pt-br, pt-br_utf8, ru, tr, uk, test  
//  
// :{\ 'en':'English', 'an':'Aragonese', 'bg':'Bulgarian', 'ca':'Catalan',  
'cn':'Chinese', 'cz':'Czech', 'de':'German', 'el':'Greek', 'el-gr':'Greek (Greece)',  
'es':'Spanish', 'eu':'Basque-Euskera', 'fi':'Finnish', 'fr':'French', 'gl':'Galician',  
'hr':'Croatian', 'it':'Italian', 'kana':'Japanese', 'kana_utf8':'Japanese (UTF8)',  
'nl':'Dutch', 'pl':'Polish', 'pt':'Portuguese', 'pt-br':'Portuguese (Brazilian)', 'pt-  
br_utf8':'Portuguese (Brazilian UTF8)', 'pt_utf8':'Portuguese (UTF8)', 'ru':'Russian',  
'tr':'Turkish', 'uk':'Ukrainian', 'test':'TEST' }  
//  
#define LCD_LANGUAGE en
```

```
#define LCD_LANGUAGE pt-br
```

```
// User-specified version info of this build to display in [Pronterface, etc] terminal window during
// startup. Implementation of an idea by Prof Braino to inform user that any changes made to this
// build by the user have been successfully uploaded into firmware.
#define STRING_CONFIG_H_AUTHOR "(Patola, SESQ)" // Who made the changes.
#define SHOW_BOOTSCREEN
#define STRING_SPLASH_LINE1 SHORT_BUILD_VERSION // will be shown during bootup in line 1
#define STRING_SPLASH_LINE2 WEBSITE_URL // will be shown during bootup in line 2

//
// *** VENDORS PLEASE READ ****
//
// Marlin now allow you to have a vendor boot image to be displayed on machine
// start. When SHOW_CUSTOM_BOOTSCREEN is defined Marlin will first show your
// custom boot image and then the default Marlin boot image is shown.
//
// We suggest for you to take advantage of this new feature and keep the Marlin
// boot image unmodified. For an example have a look at the bq Hephestos 2
// example configuration folder.
//
// #define SHOW_CUSTOM_BOOTSCREEN
// @section machine

/***
 * Select which serial port on the board will be used for communication with the host.
 * This allows the connection of wireless adapters (for instance) to non-default port pins.
 * Serial port 0 is always used by the Arduino bootloader regardless of this setting.
 *
 * :[0, 1, 2, 3, 4, 5, 6, 7]
 */
#define SERIAL_PORT 0
```

Configuration.h

Configuration_adv.h

Configuration.h

Repetier-Firmware configuration tool for version 0.92.9 version

Start	General	Mechanics	Tools	Features	User Interface	Manual	Download
Configuration level Normal, hide only internal settings							
Processor	Atmel 8-bit based board (e.g. Arduino Mega)						
Motherboard MOTHERBOARD	RAMPS 1.3/RAMPS 1.4						
Printer type DRIVE_SYSTEM	Cartesian printer						
EEPROM usage EEPROM_MODE	EEPROM Set 1						
If you enable eeprom, you can change the most important parameter after installation over the host. Please be aware that the eeprom values overwrite settings in Configuration.h! To overwrite exiting settings select a different eeprom set.							
Primary Port RFSERIAL	Default port						
Baud rate BAUDRATE	115200 ANSI						
If you intend to use the printer from a linux pc, select a ansi baud rate.							
Bluetooth serial port BLUETOOTH_SERIAL	No bluetooth connected						
Baud rate bluetooth BLUETOOTH_BAUD	115200 ANSI						
If you intend to use the printer from a linux pc, select a ansi baud rate.							
Kill method KILL_METHOD	Reset controller. Will not reset separate communication chips!						
Startup GCode STARTUP_GCODE							

Dimensions

X min position X_MIN_POS	0	[mm]
Y min position Y_MIN_POS	0	[mm]

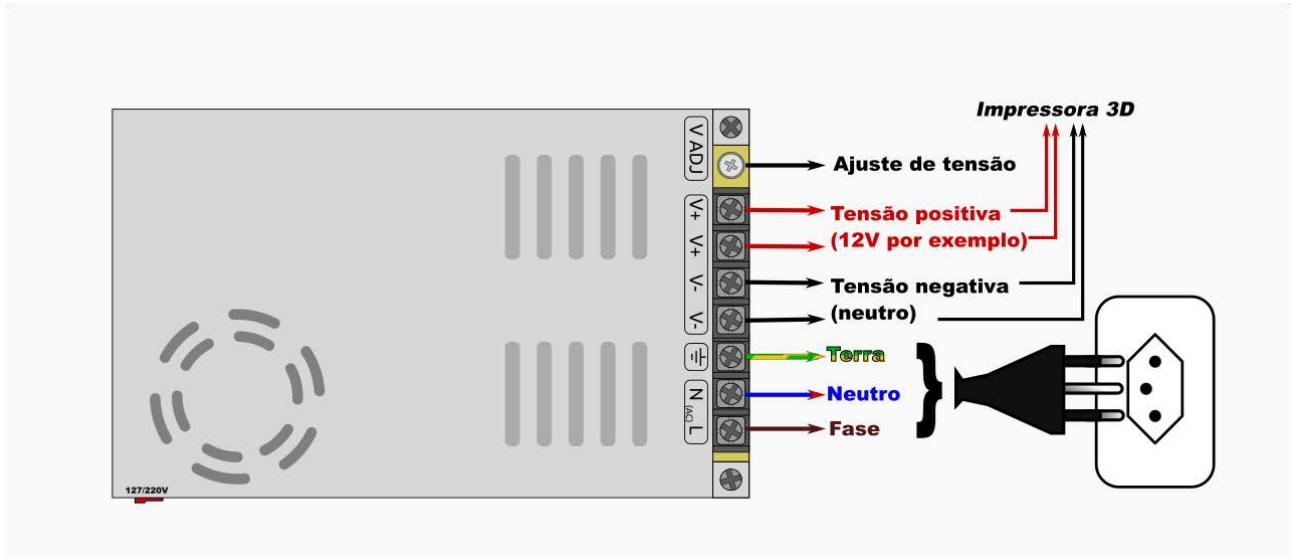
config

```
//#define EEPROM_SETTINGS
```

```
#define EEPROM_SETTINGS
```

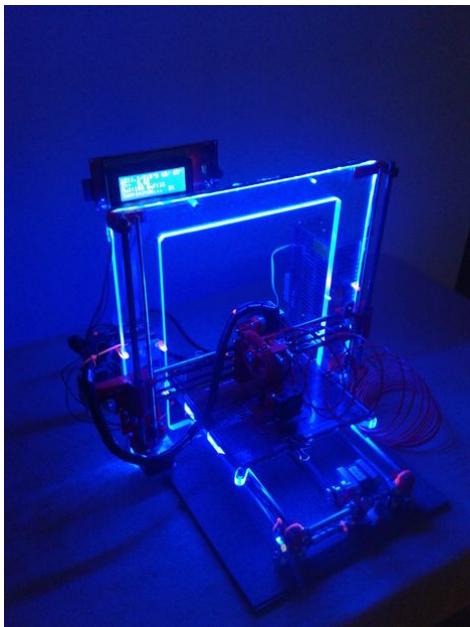
```
#define EEPROM_MODE 2
```

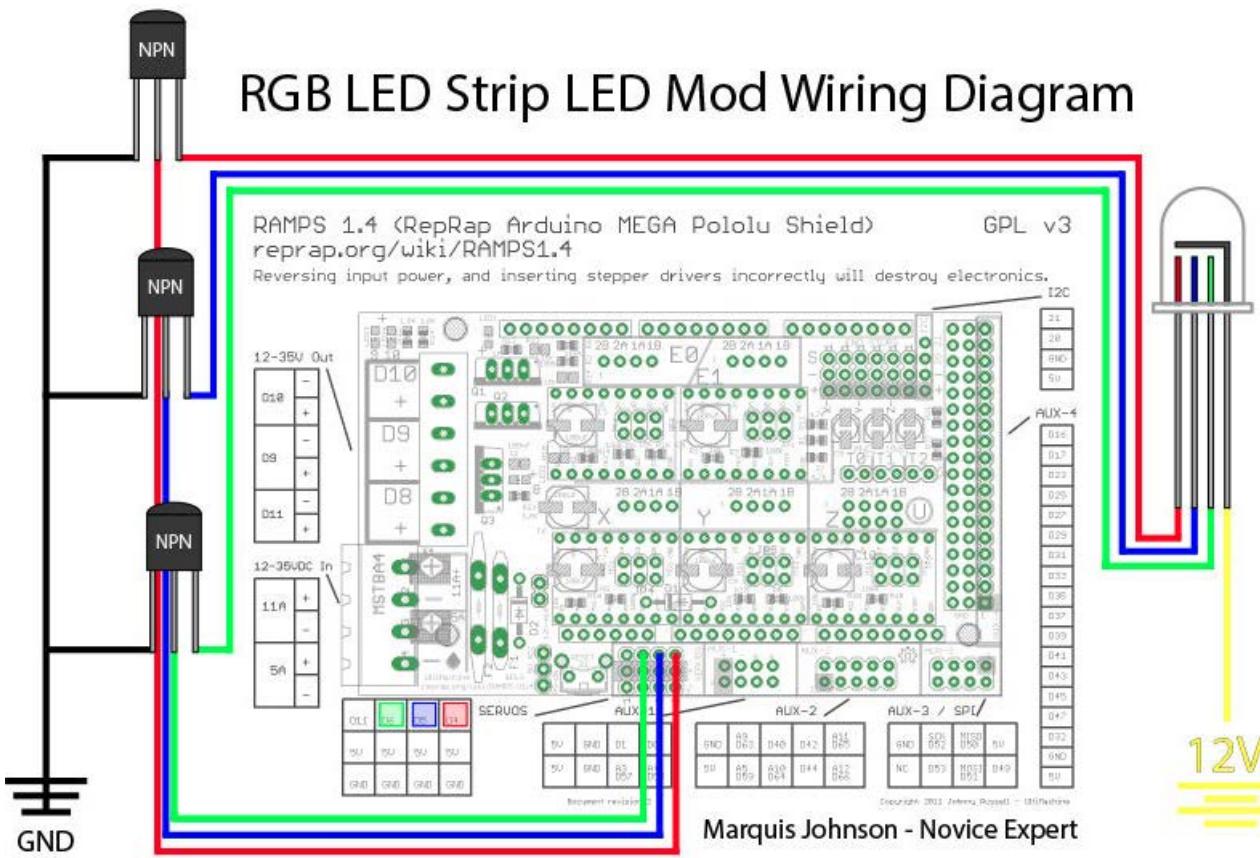
```
#define EEPROM_MODE 0
```











M42 P4 S128 ; liga o pino vermelho (4) com intensidade 50% (128 -- de 0 a 255)

M42 P5 S255 ; liga o pino verde (5) com intensidade 100%

M42 P4 S255 ; pino vermelho em máxima intensidade
M42 P5 S255 ; pino verde em máxima intensidade; a luz resultará amarela.
M42 P6 S0 ; pino azul desligado
G28 W ; faz o procedimento de _homing_ sem autonivelamento
M400 ; espera o _homing_ acabar.
M42 P5 S0 ; desliga o led verde; a luz ficará vermelha.
M190 S120 ; ajusta a temperatura da mesa para 120 e espera chegar nesse valor.
M42 P6 S255 ; liga o led azul; púrpura indica que a mesa terminou o aquecimento.
M109 S240 ; ajusta a temperatura do _hotend_ em 240 e espera chegar nesse valor.
M42 P5 S255 ; liga o led verde; luz branca indica que a impressão iniciará.

```
switch.red.enable # o nome ("red") depois do comando _switch_
                  # é criado no momento, não pré-definido.
switch.red.output_pin 1.23 # Pino P1.23 para led vermelho
switch.red.output_type pwm # poderia ser hwpwm (pwm de hardware)
                           # também -- mais apropriado para servos
switch.red.startup_value 127 # 0 a 255
switch.red.input_on_command M151 # comando inexistente na especificação
                                # reprap, pontos vamos usar para controlar
                                # esse led
```

M151 S255 ; ajusta para a intensidade máxima

```
// Support for an RGB LED using 3 separate pins with optional PWM
//#define RGB_LED
#if ENABLED(RGB_LED)
#define RGB_LED_R_PIN 34
#define RGB_LED_G_PIN 43
#define RGB_LED_B_PIN 35
#endif
```

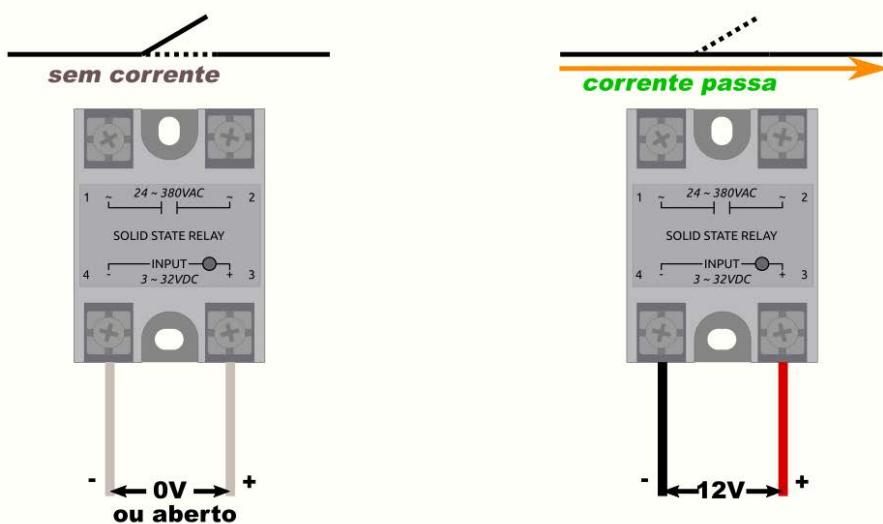


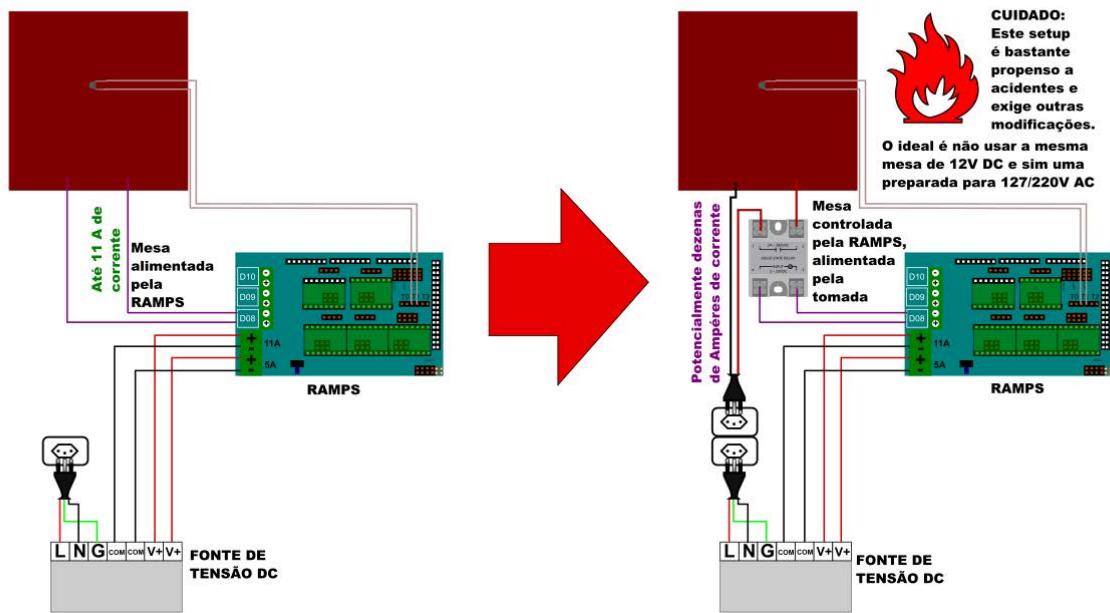
```
// Support for an RGB LED using 3 separate pins with optional PWM
#define RGB_LED
#if ENABLED(RGB_LED)
#define RGB_LED_R_PIN 4
#define RGB_LED_G_PIN 5
#define RGB_LED_B_PIN 6
#endif
```

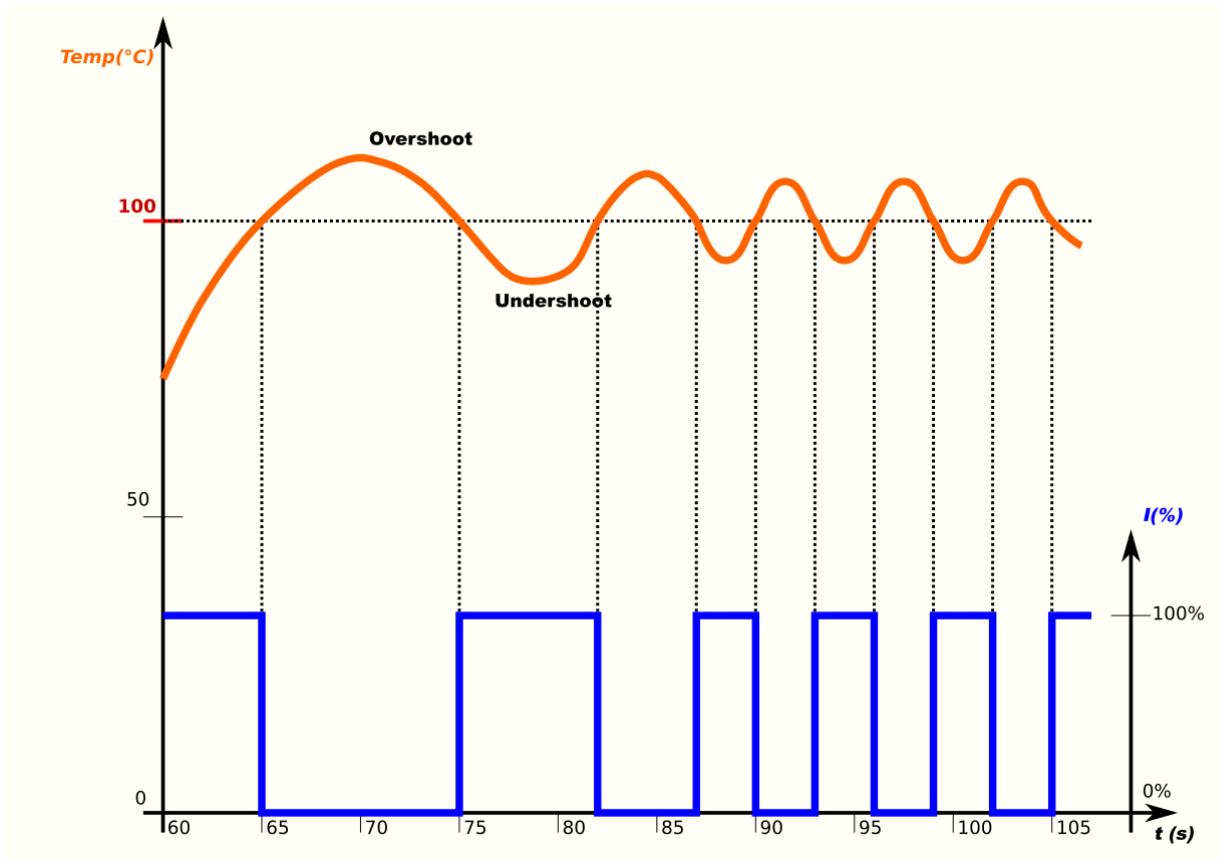
M150 R255 U255 B0 ; R é o led vermelho, U é o verde e B é o azul

PIN	Power	
	12V	24V
1	+	
2	-	+
3	-	-









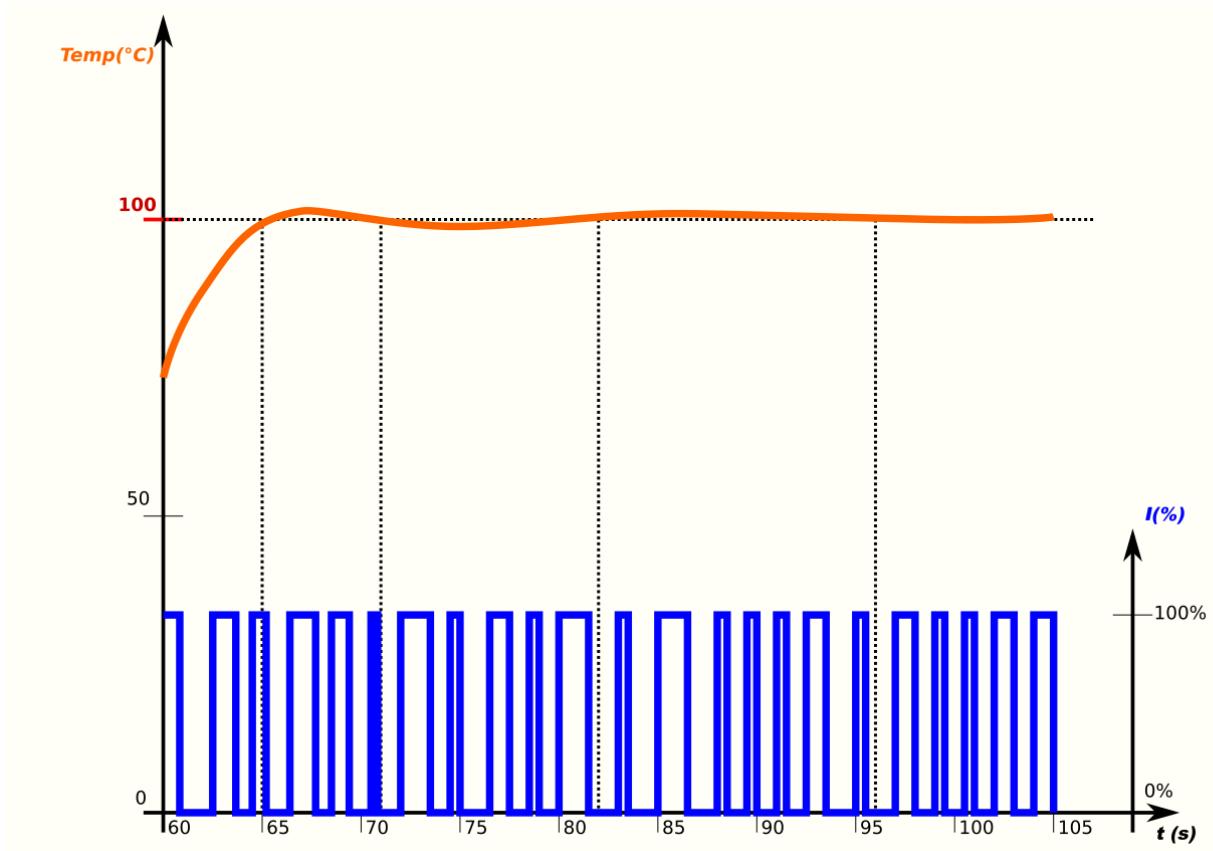
```
/** Type of heat manager for this extruder.  
- 0 = Simply switch on/off if temperature is reached. Works always.  
- 1 = PID Temperature control. Is better but needs good PID values. Defaults are a  
good start for most extruder.  
Overridden if EEPROM activated.  
*/  
#define HEATED_BED_HEAT_MANAGER 1 // desabilita bang-bang, habilita PID  
#define EXT0_HEAT_MANAGER 1  
#define EXT1_HEAT_MANAGER 1  
// maximum time the heater can be switched on. Max = 255. Overridden if EEPROM  
activated.  
#define HEATED_BED_PID_MAX 255  
#define EXT0_PID_MAX 255  
#define EXT1_PID_MAX 255
```

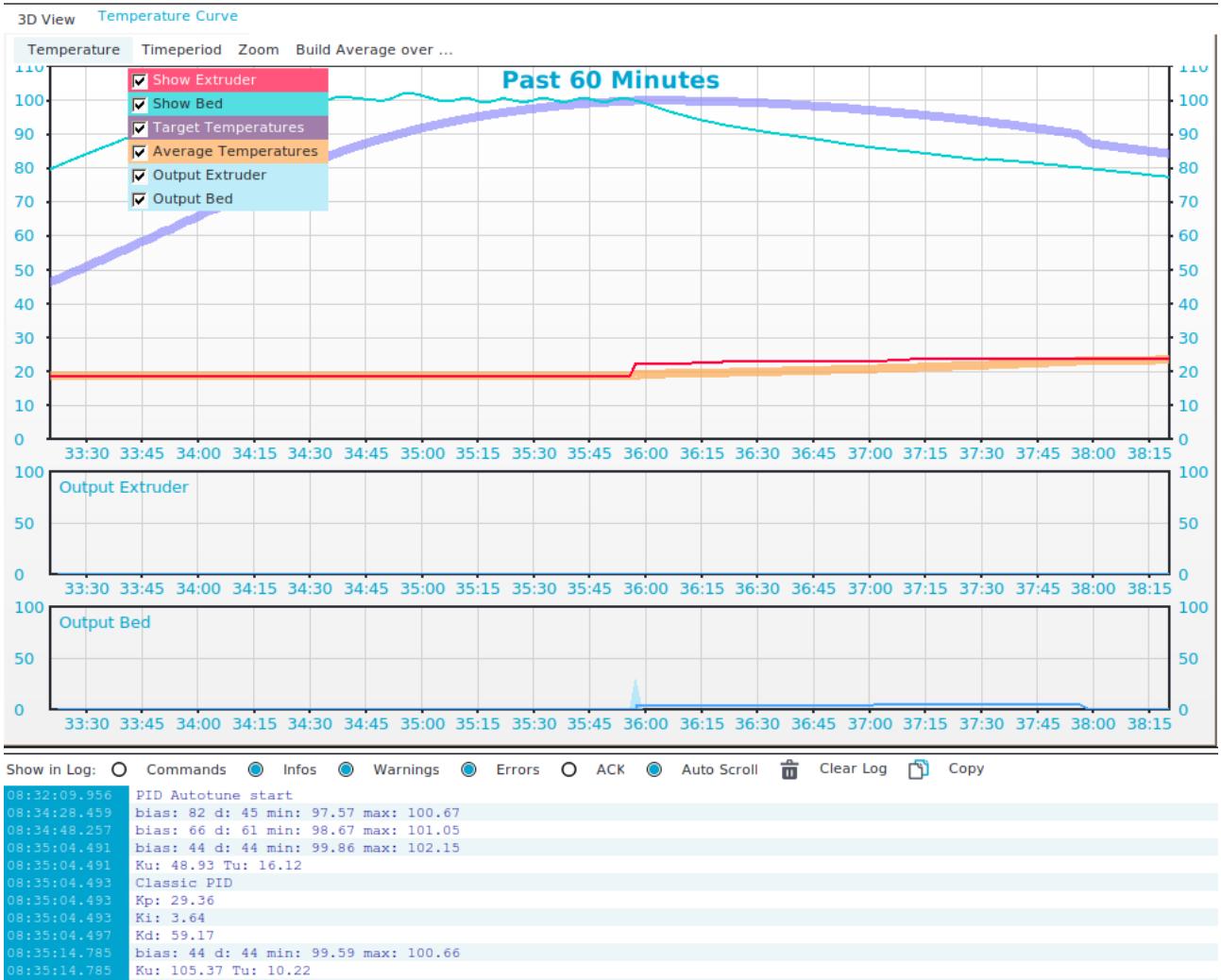
```
#define HEATED_BED_PID_MAX 64
```

```
//#define PIDTEMP // comentado, desabilita PID e habilita bang-bang para os extrusores  
#define BANG_MAX 255 // vale para os extrusores  
//#define PIDTEMPBED // comentado, desabilita PID e habilita bang-bang para a mesa  
#define MAX_BED_POWER 64
```

```
#define PIDTEMP  
#define PID_MAX 255  
#define PIDTEMPBED  
#define MAX_BED_POWER 64
```

$$u(t)=K_pe(t)+K_i\textstyle{\int_0^t}e(\tau)d\tau+K_d\frac{de(t)}{dt}$$





M303 E-1 S100 C8

```

08:35:57.416 : Ku: 84.99 Tu: 10.75
08:35:57.418 : Classic PID
08:35:57.418 : Kp: 51.00
08:35:57.418 : Ki: 9.49
08:35:57.422 : Kd: 68.51
08:35:57.431 : PID Autotune finished! Put the last Kp, Ki and Kd constants from above
into Configuration.h

```

M304 P51.00 I9.49 D68.51 ; ajusta P, I e D para a mesa na memória transiente
M500 ; salva na EEPROM

M301 H1 P51.00 I9.49 D68.51 ; ajusta P, I e D para a extrusor 1

#define PID_AUTOTUNE_MENU

Configuration.h

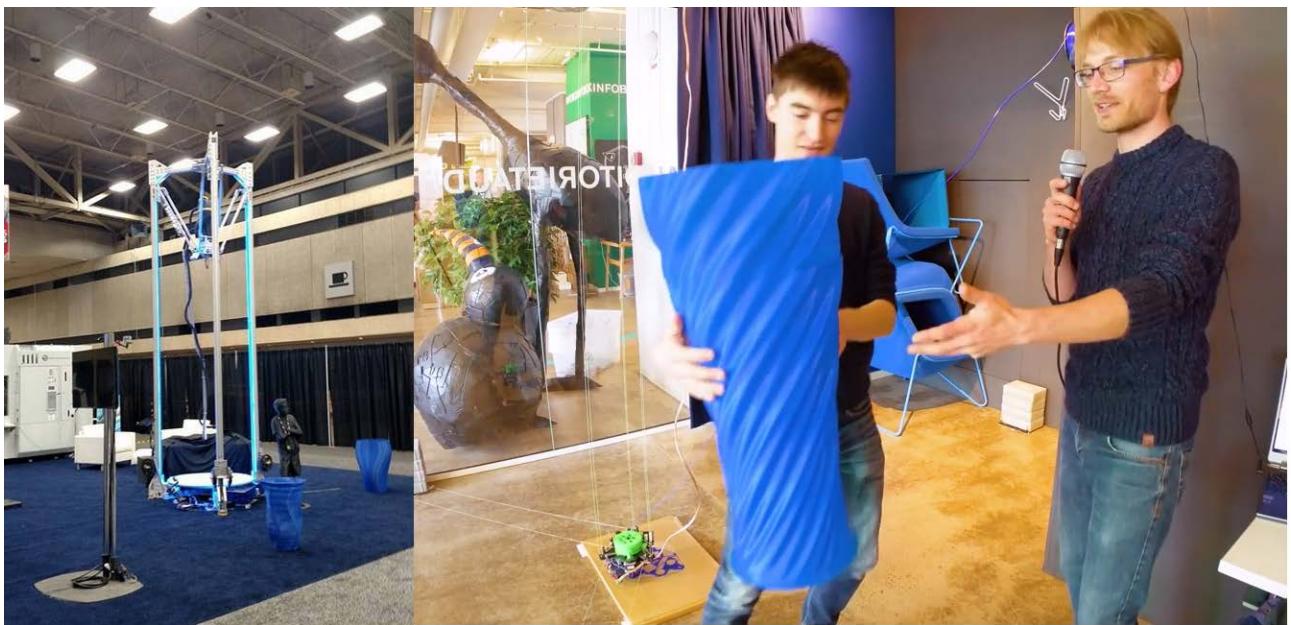
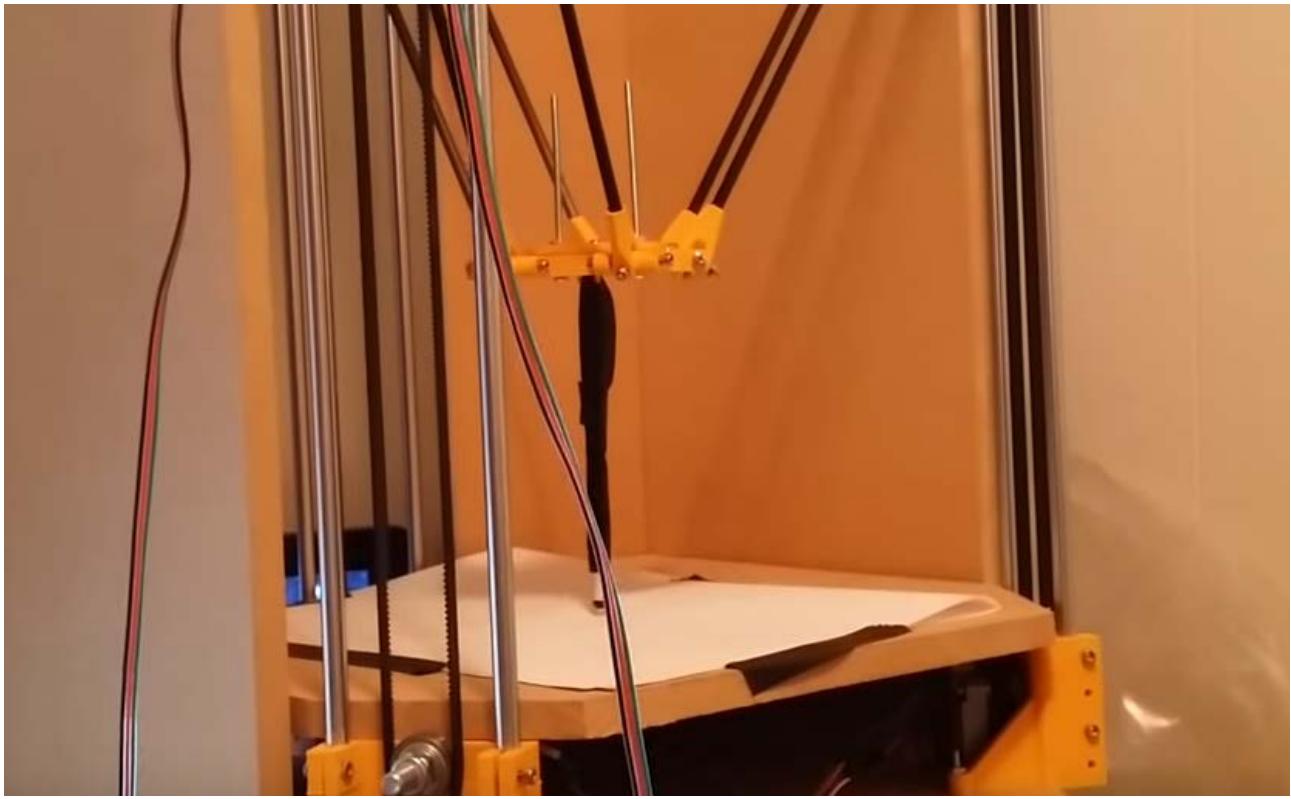
PID_FUNCTIONAL_RANGE

Configuration.h

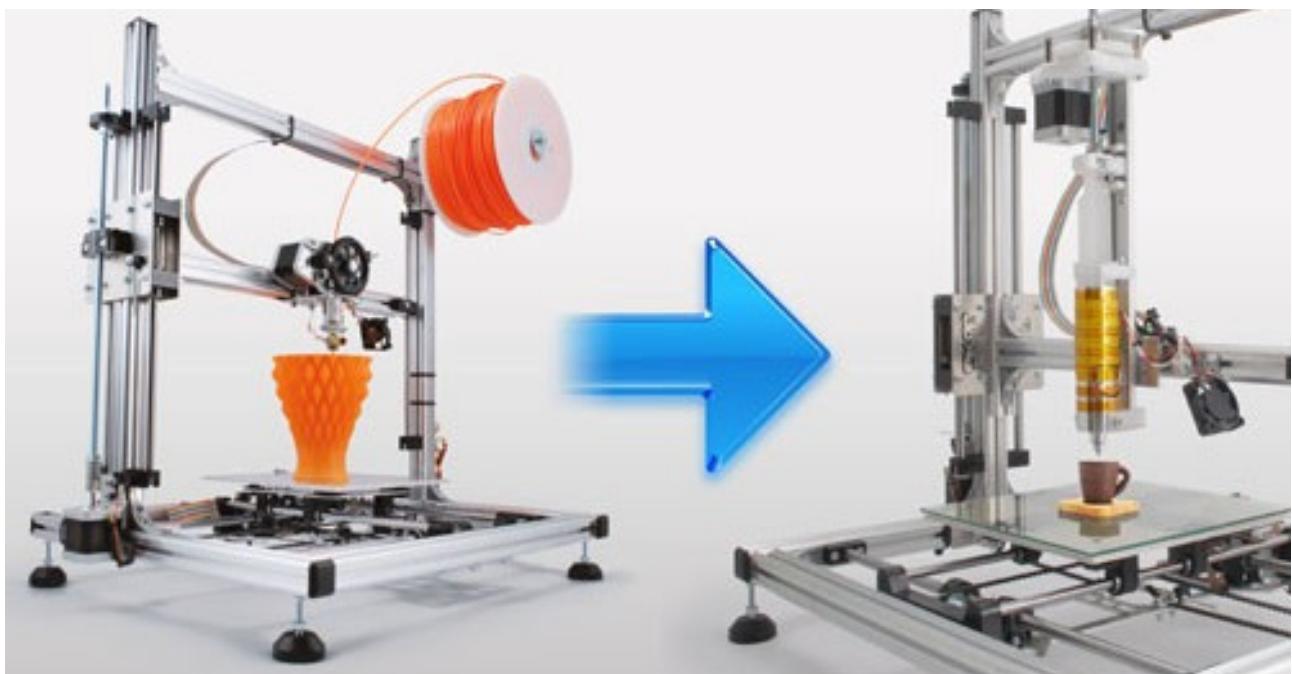
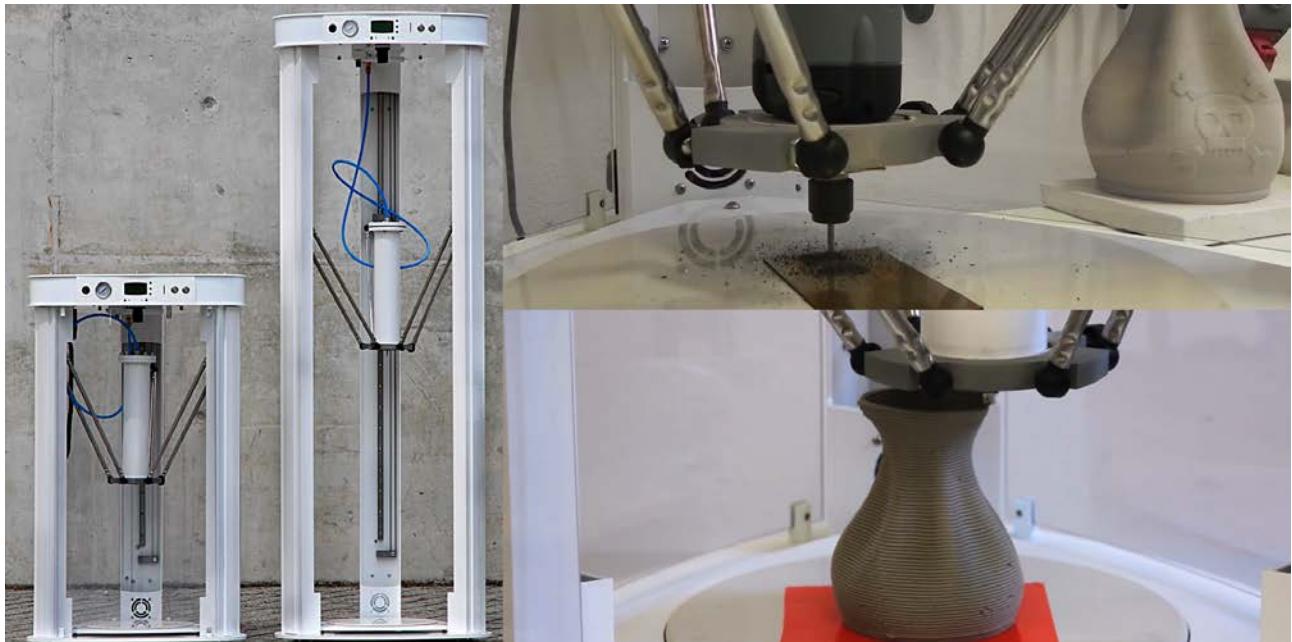
```
/**  
 * Thermal Protection protects your printer from damage and fire if a  
 * thermistor falls out or temperature sensors fail in any way.  
 *  
 * The issue: If a thermistor falls out or a temperature sensor fails,  
 * Marlin can no longer sense the actual temperature. Since a disconnected  
 * thermistor reads as a low temperature, the firmware will keep the heater on.  
 *  
 * If you get "Thermal Runaway" or "Heating failed" errors the  
 * details can be tuned in Configuration_adv.h  
 */  
#define THERMAL_PROTECTION_HOTENDS // Enable thermal protection for all extruders  
#define THERMAL_PROTECTION_BED // Enable thermal protection for the heated bed
```

Configuration_adv.h

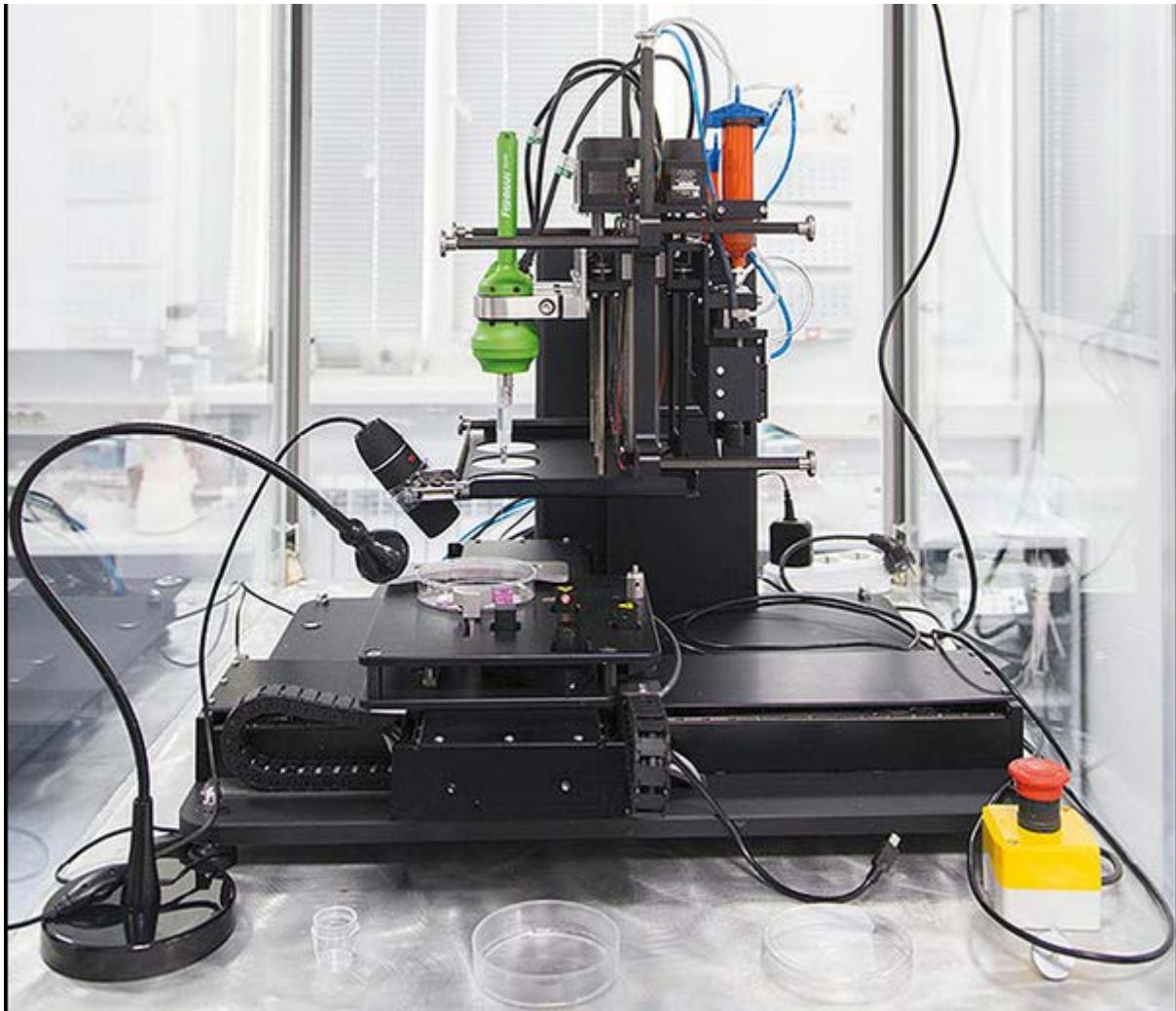


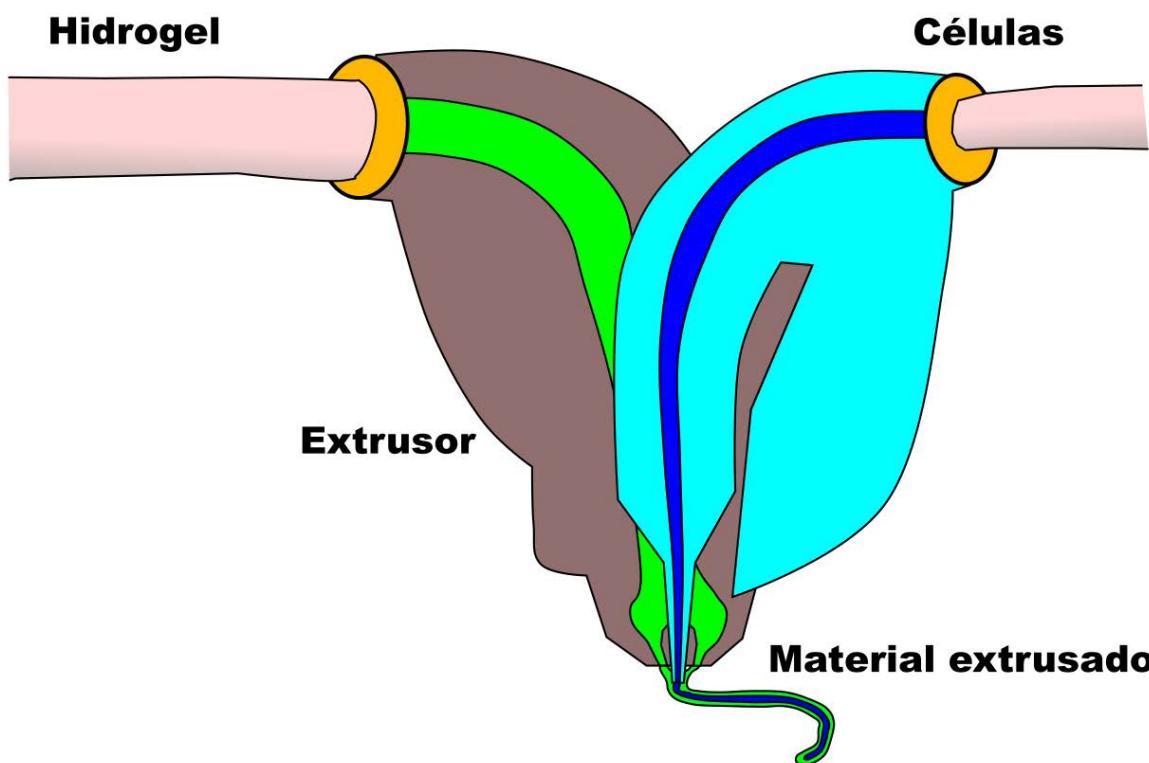




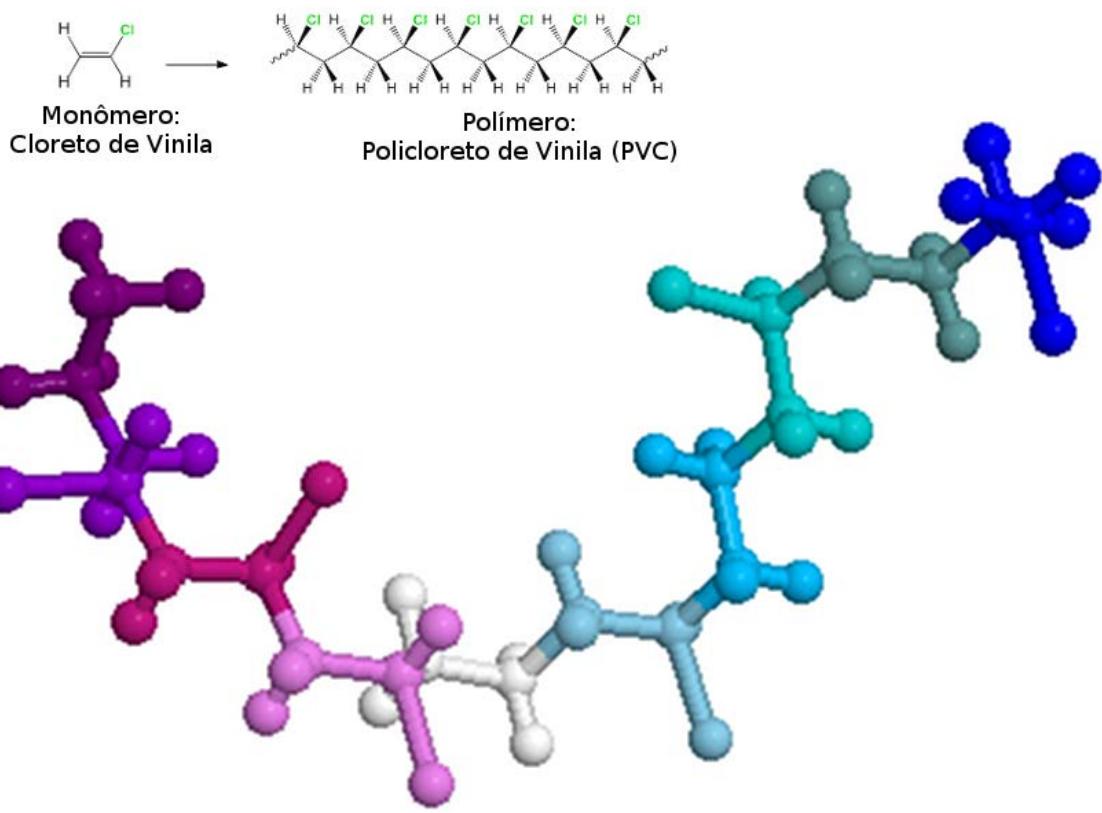


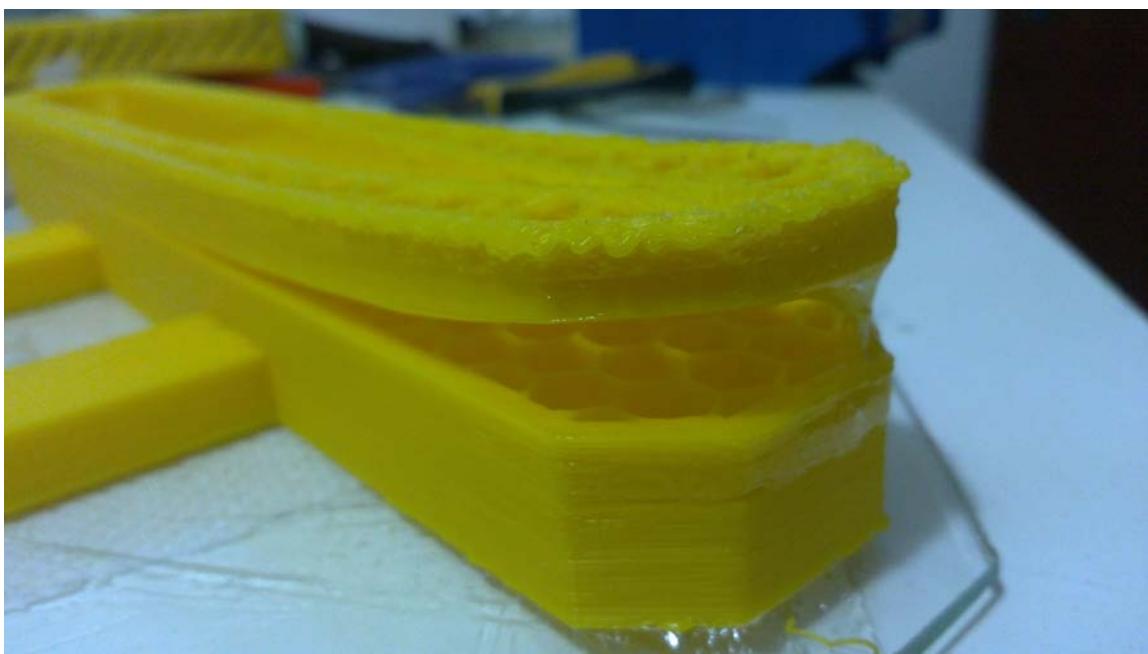




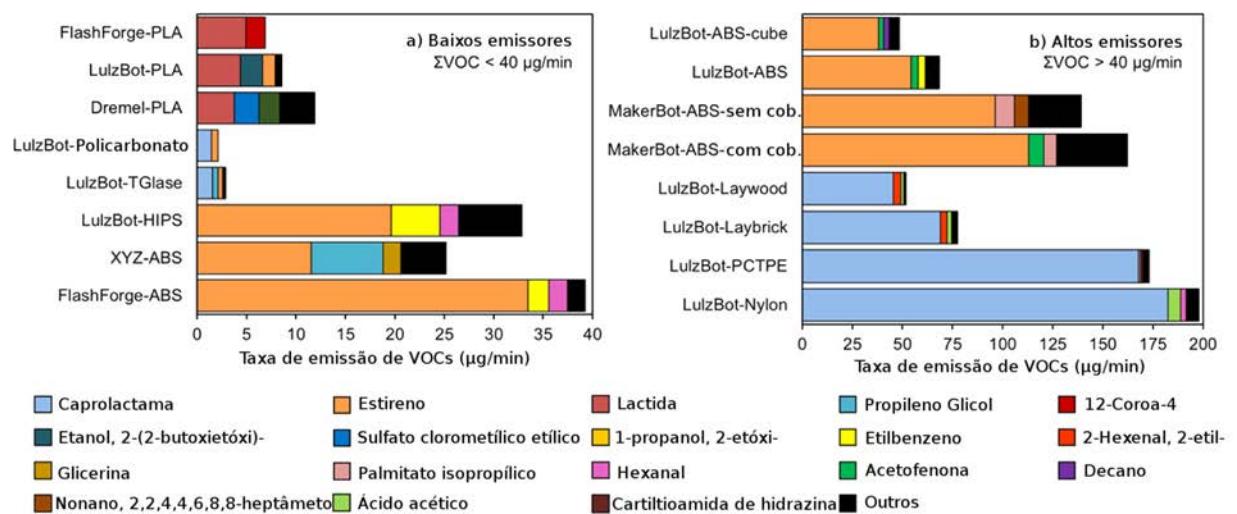


i



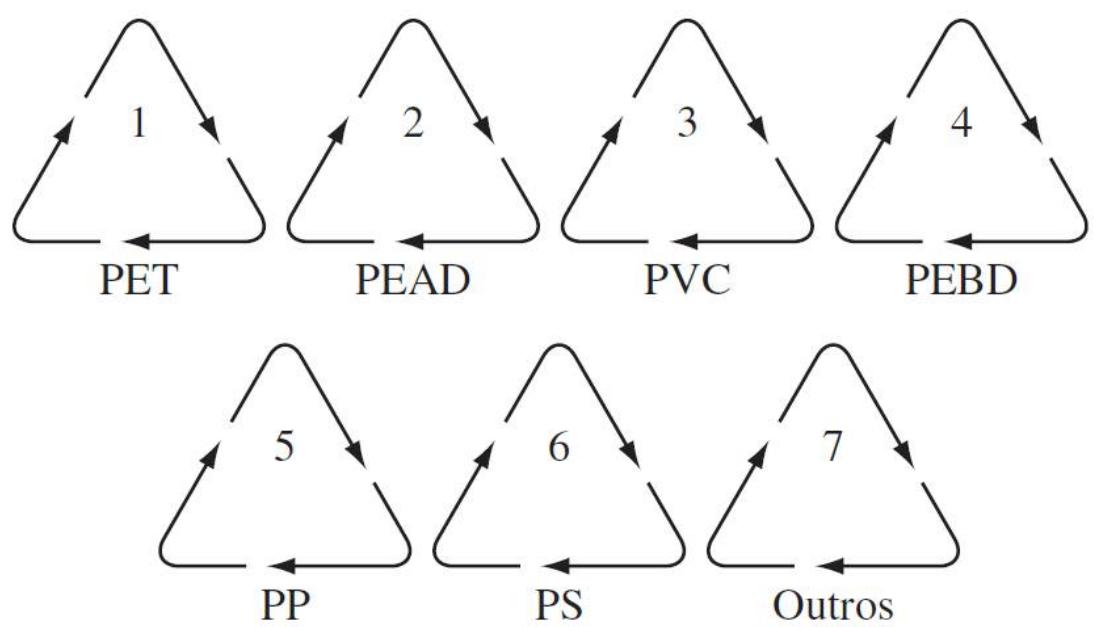


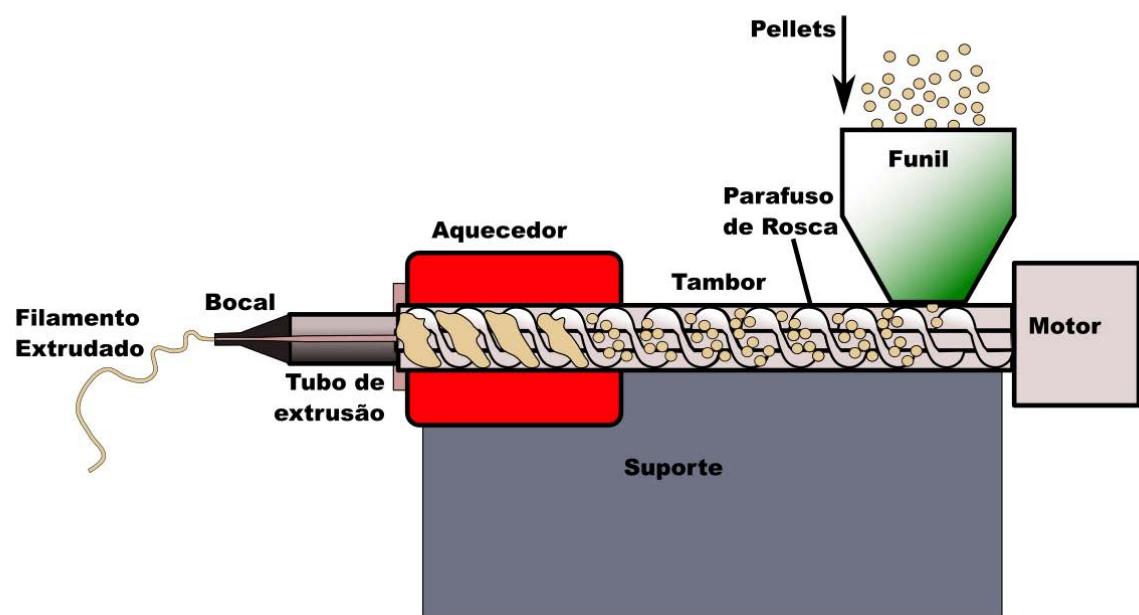


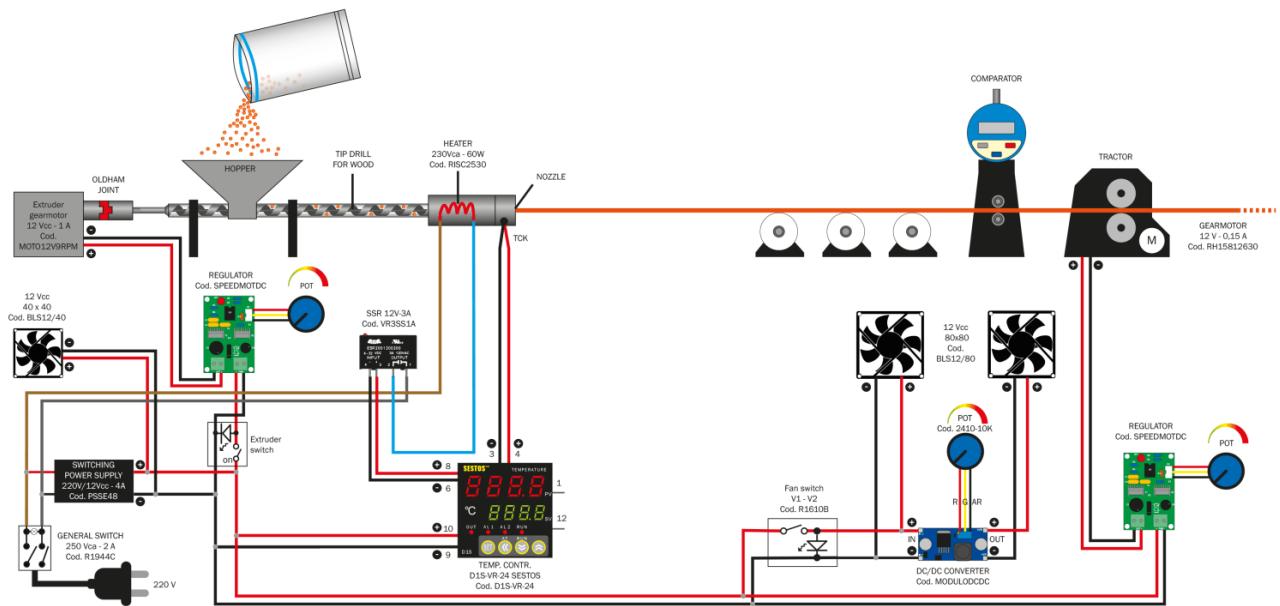


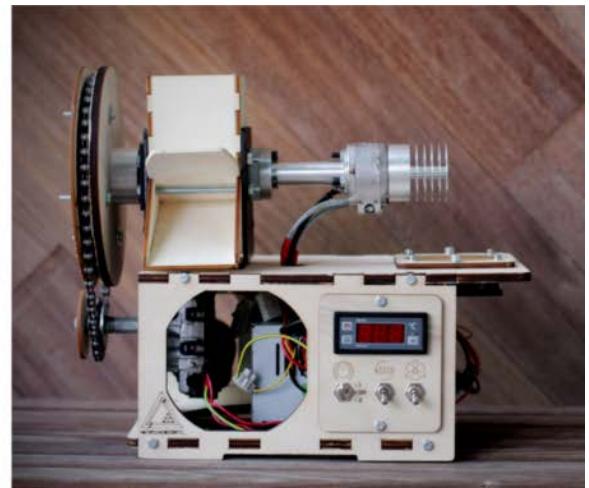


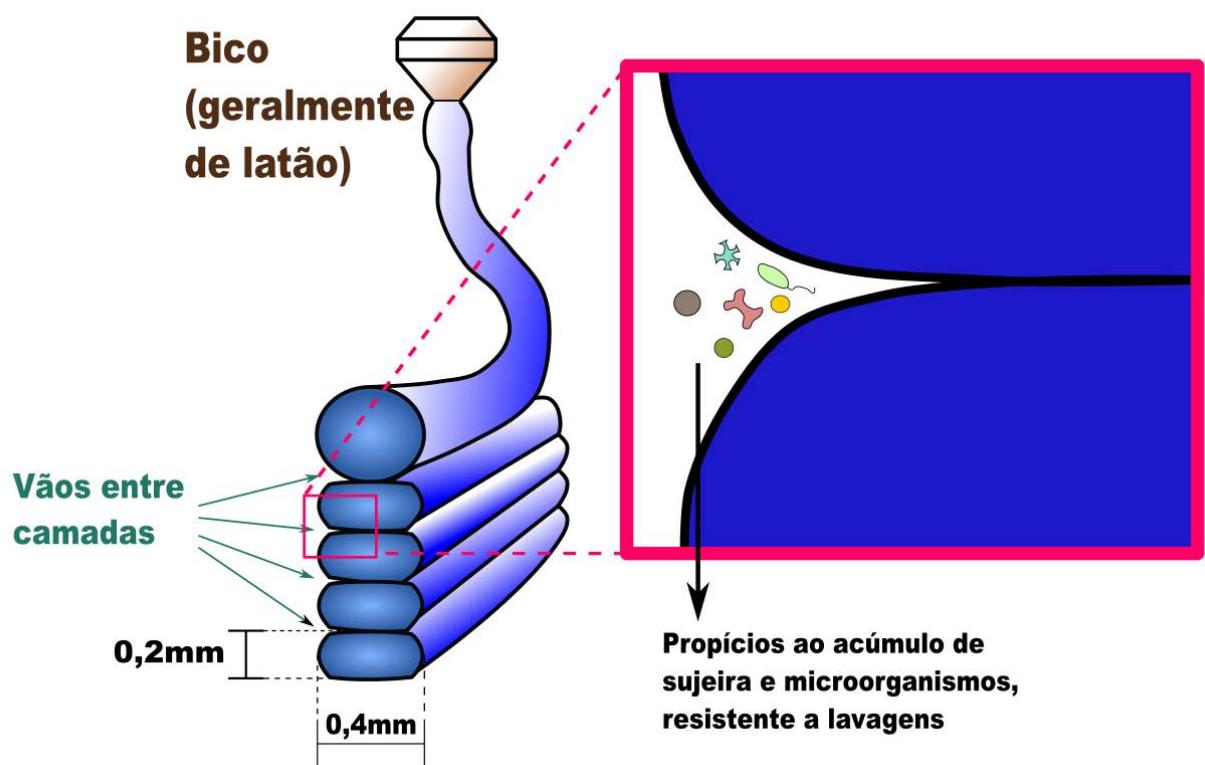














VAPOR DE
ACETONA →

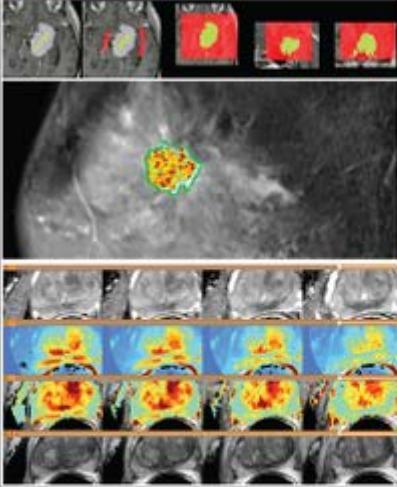
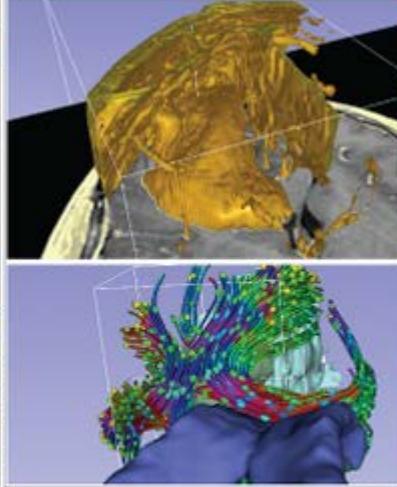
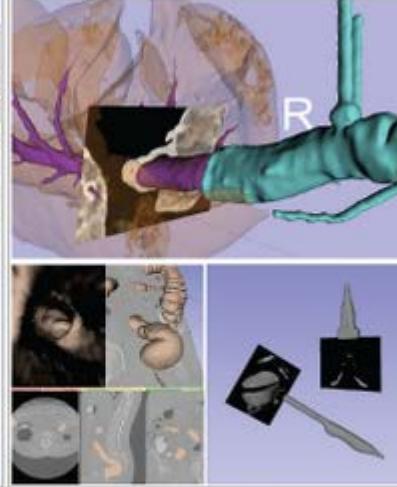
0,2mm



Antimicrobial results

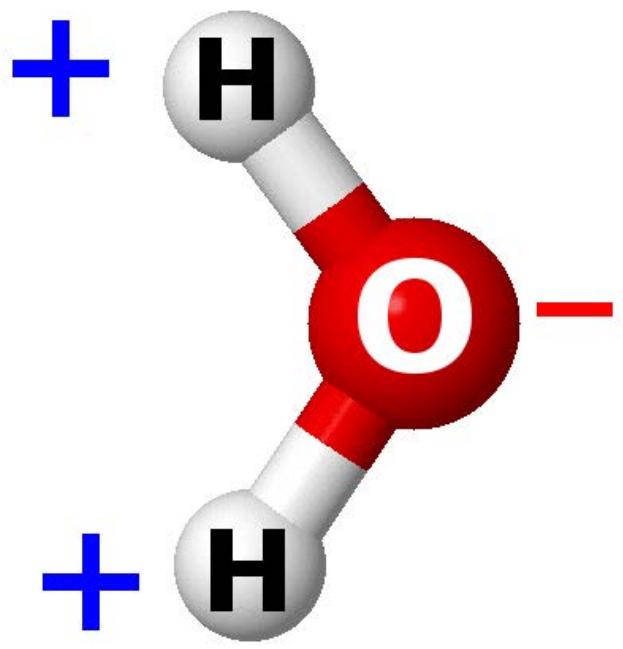


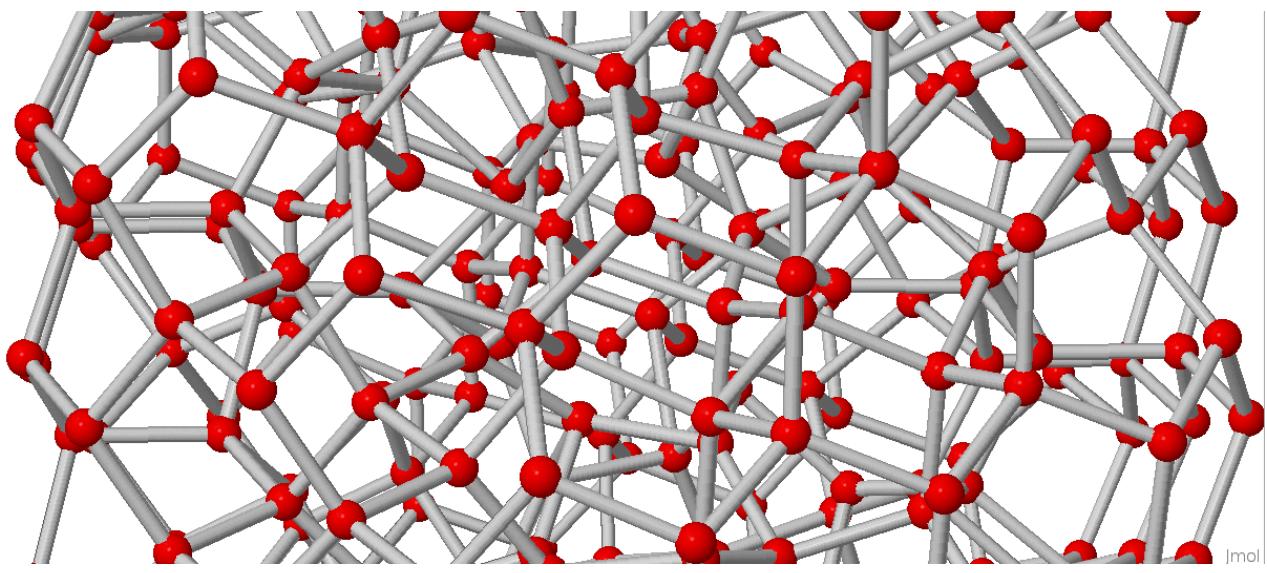


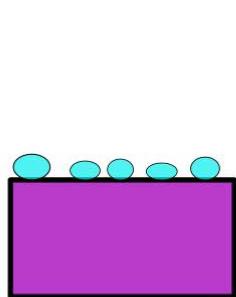
<i>Powerful processing.</i>	<i>Streamlined interface.</i>	<i>Extensible platform.</i>
		
 3D Slicer version 4		www.slicer.org



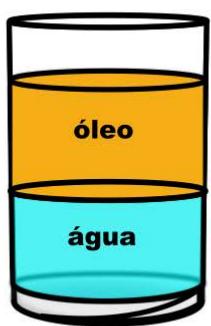




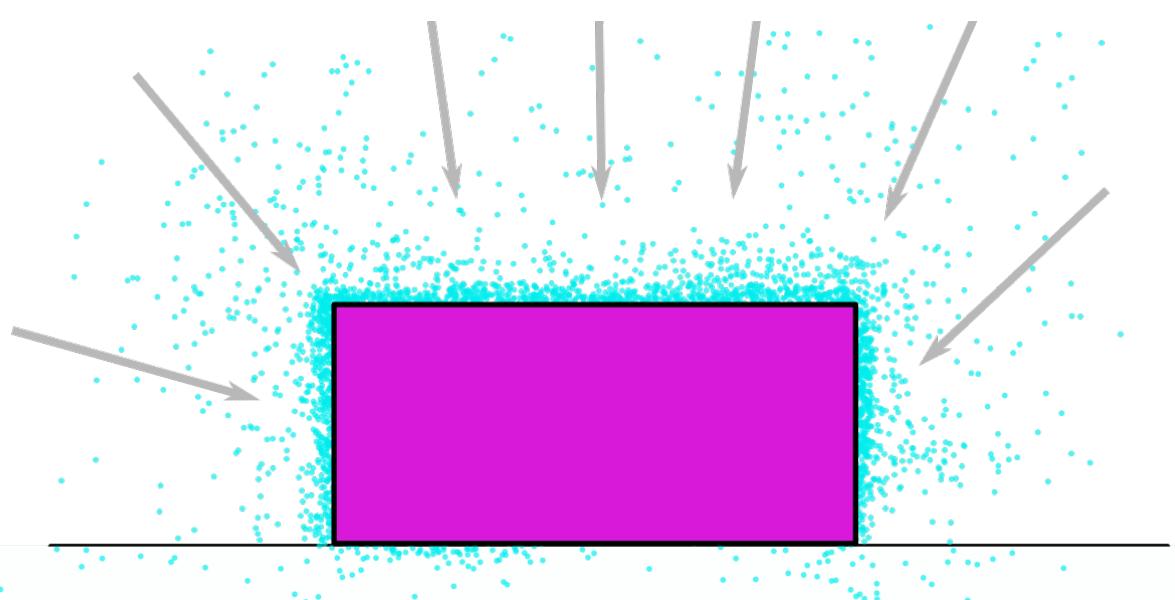




HIDROFOBIA

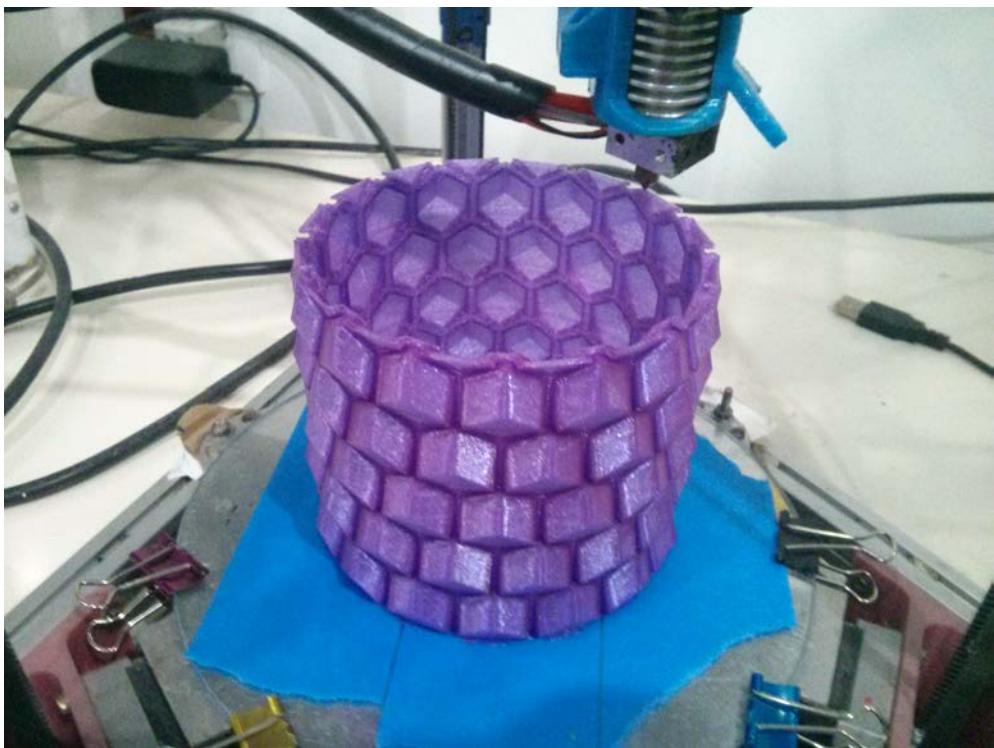


HIDROFILIA



i











FILAFLEX TENSOR

Made by Patola, uploaded Jan 23, 2016













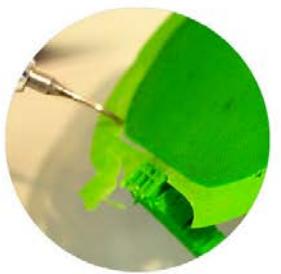
i

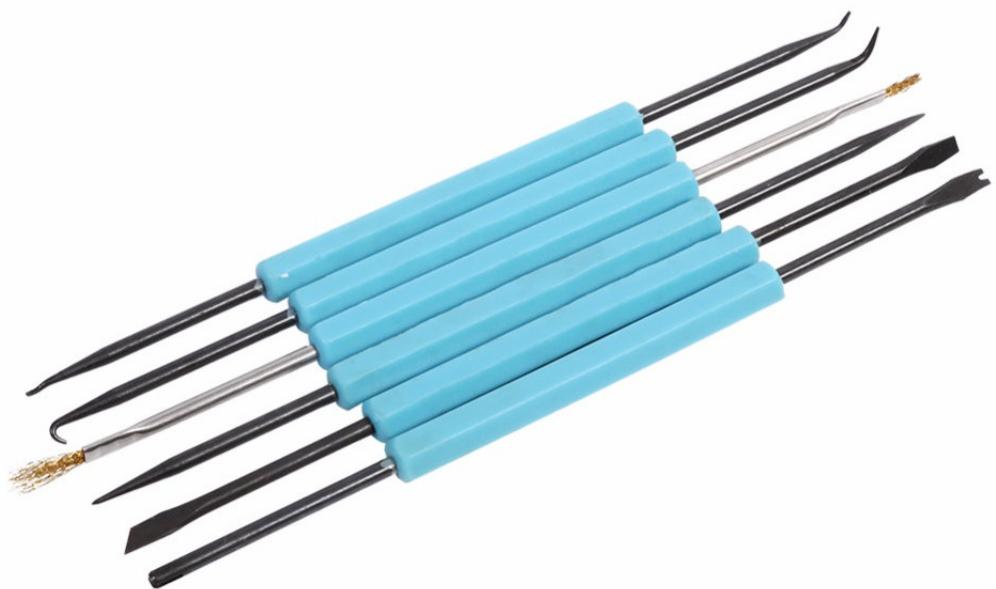
i





i



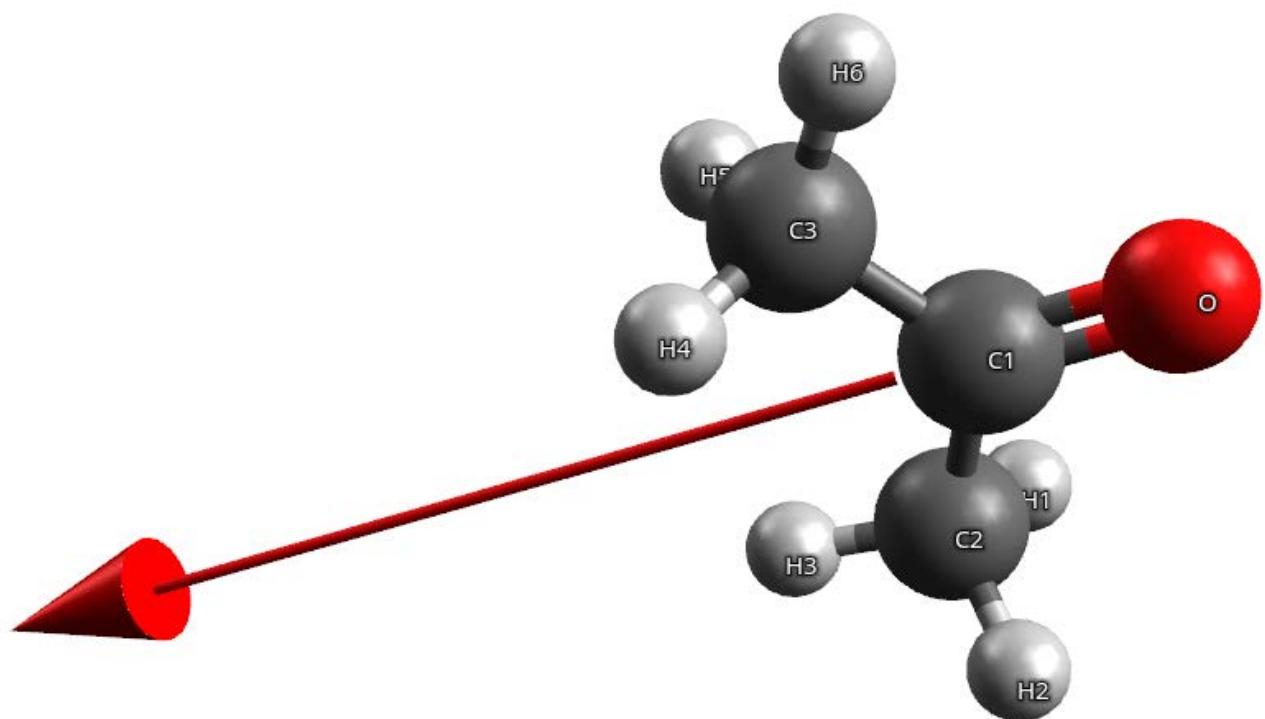






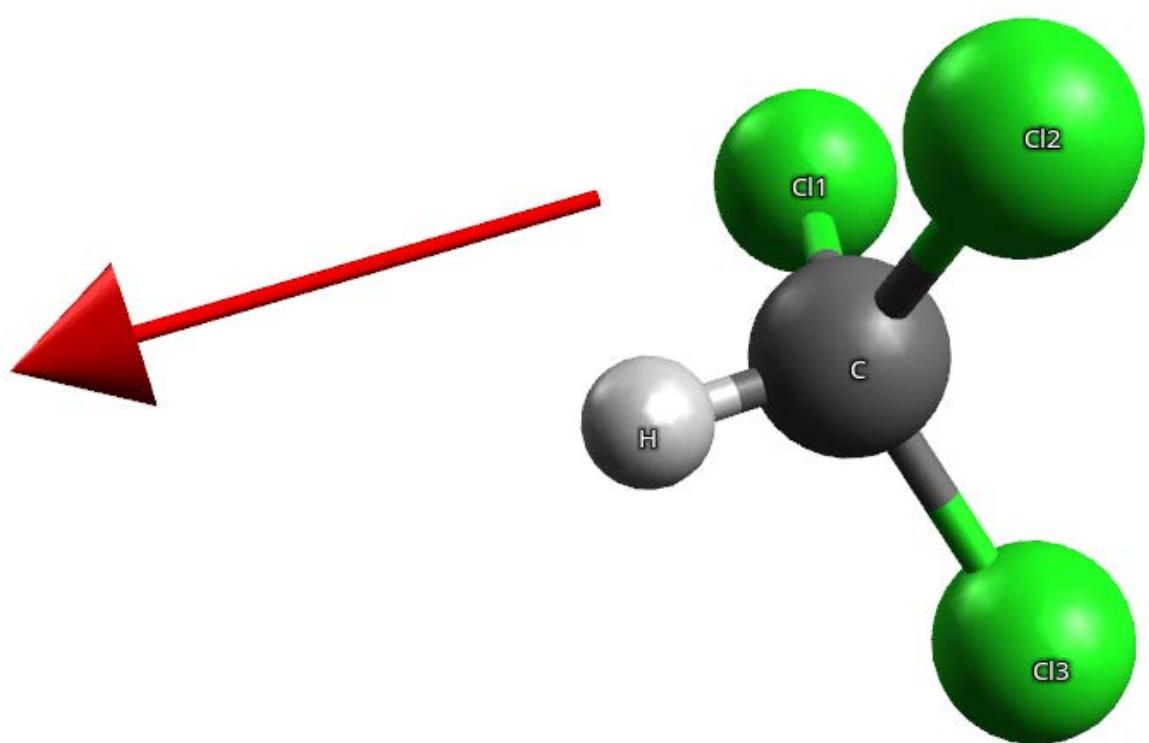


|

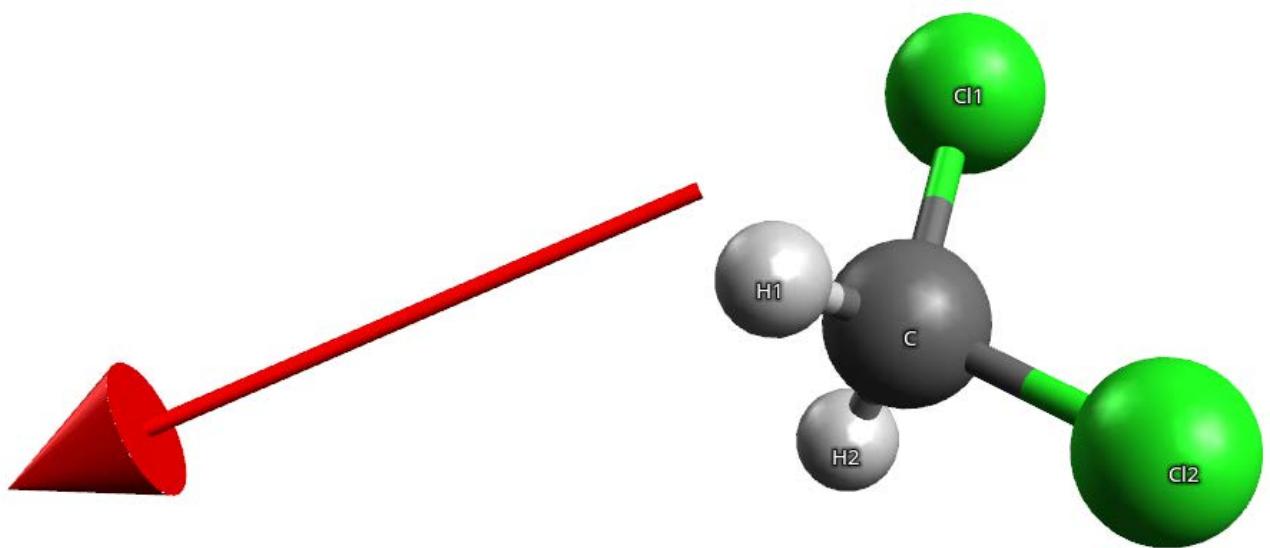


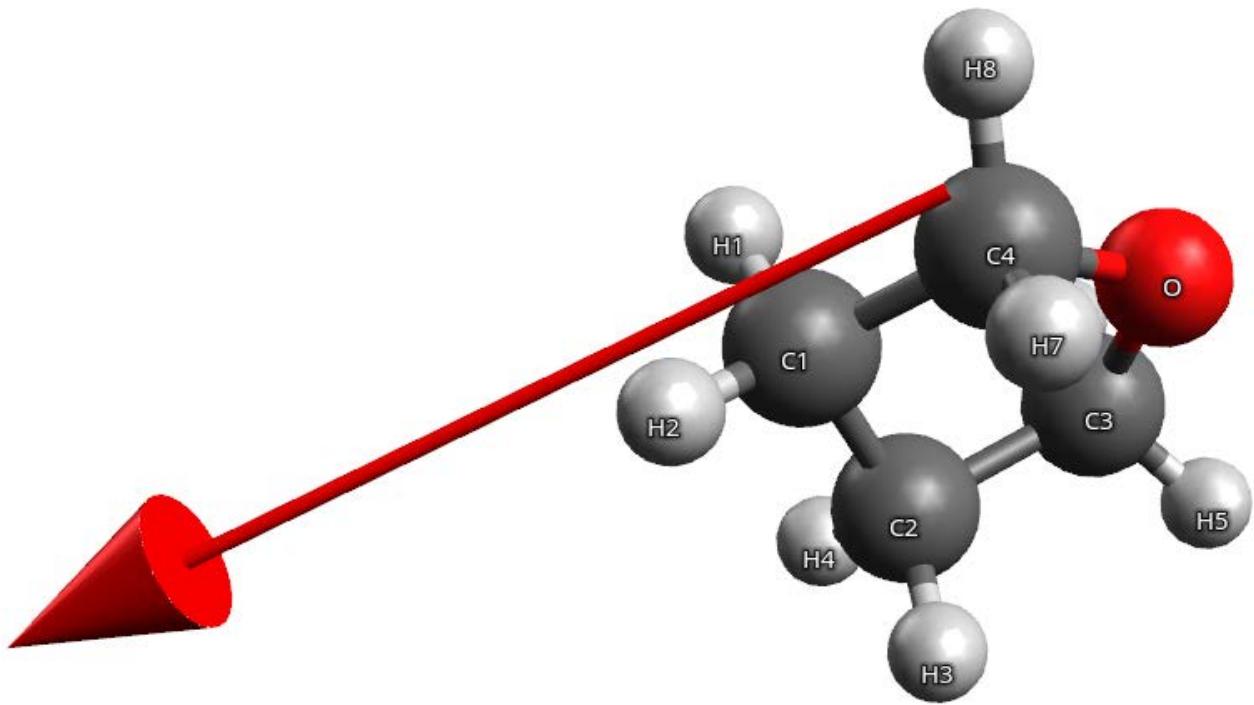


i

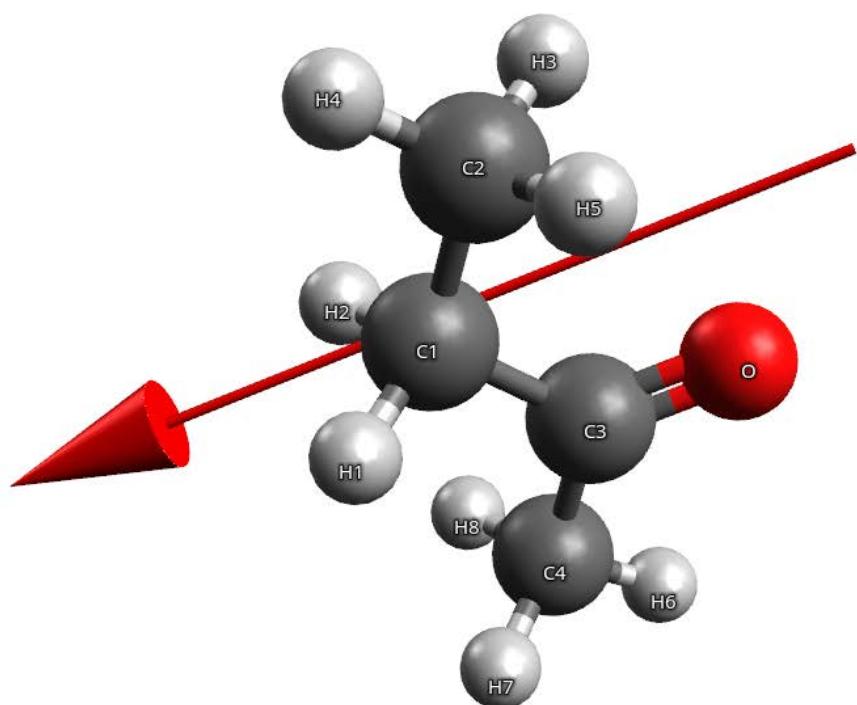


i





i



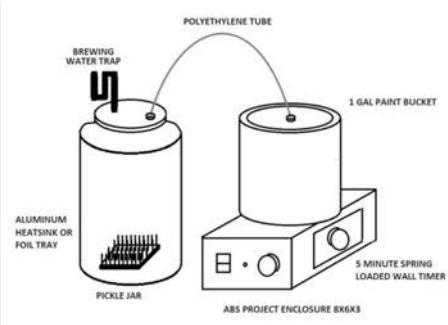
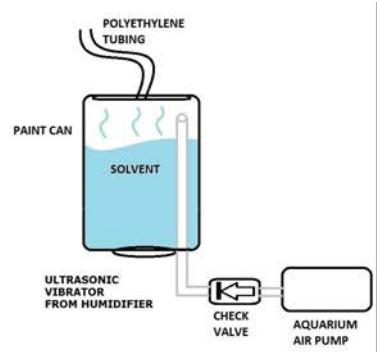


i

i







IDEAL SETUP



MagicBox

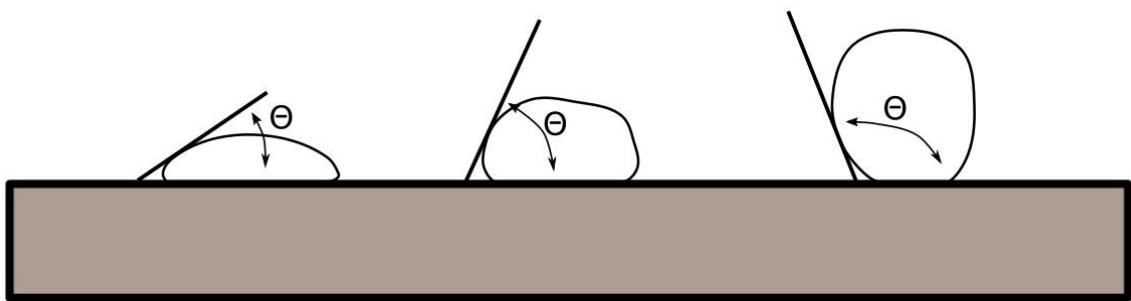


Compare the quality of prints





i



$$\Theta = 0^\circ$$

Molhabilidade quase perfeita

$$\Theta < 90^\circ$$

Molhabilidade boa

$$\Theta > 90^\circ$$

Molhabilidade
ruim









Vertical dial indicator support
by Patola

Jul 5, 2014

13

17

8



Vertical dial indicator support
by Patola

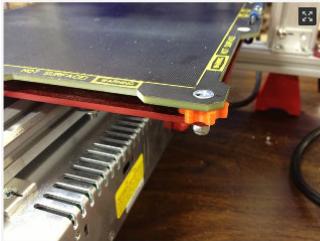
Jul 5, 2014

50

127

8

 **Bed Leveling Kit**
by 3DPartMfg, published June 29, 2014



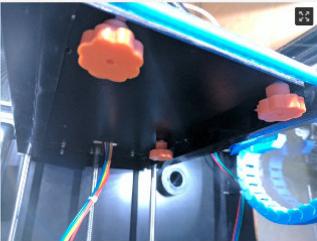
 **Easy bed levelers for MTW Minimax**
by Recorail, published Oct 5, 2015



 **Pretty Good Bed Leveling & Z-Stop Kit for Make**
by houmt, published Apr 23, 2016



 **M3 Nut Knob for Bed Leveling - CTC/FF**
by CrazyAhoone, published Feb 8, 2017

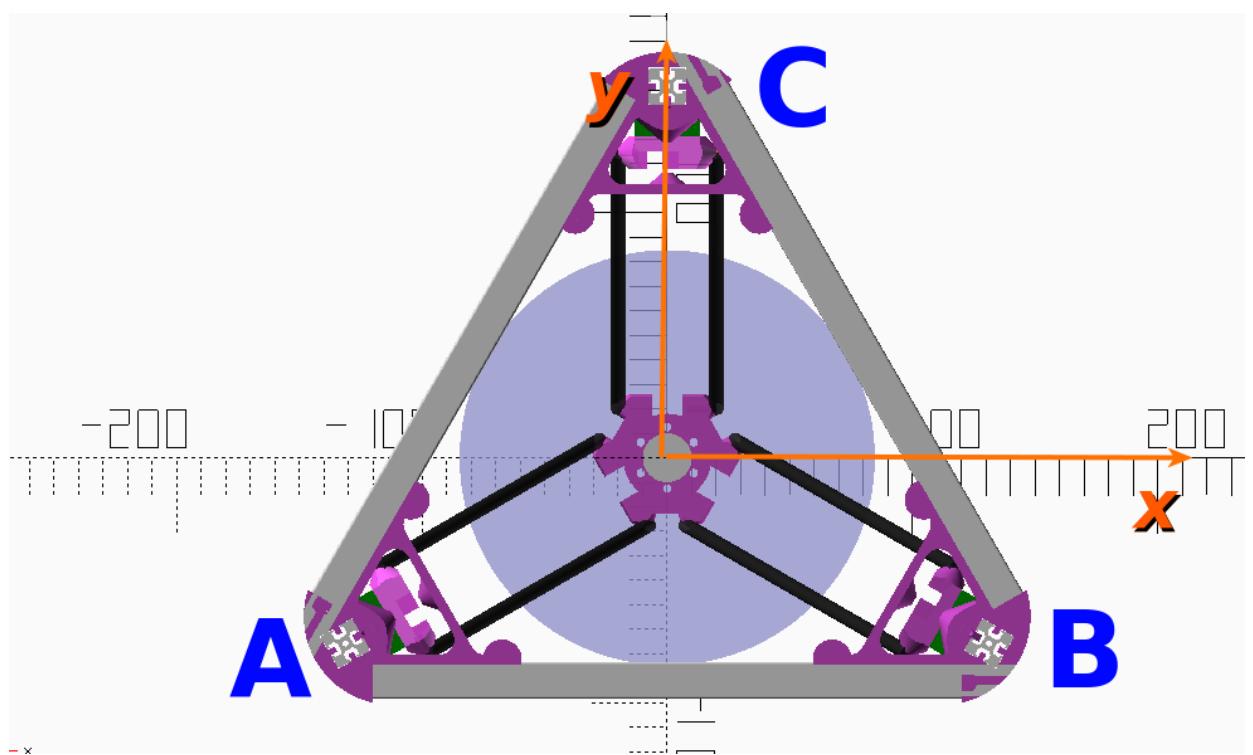


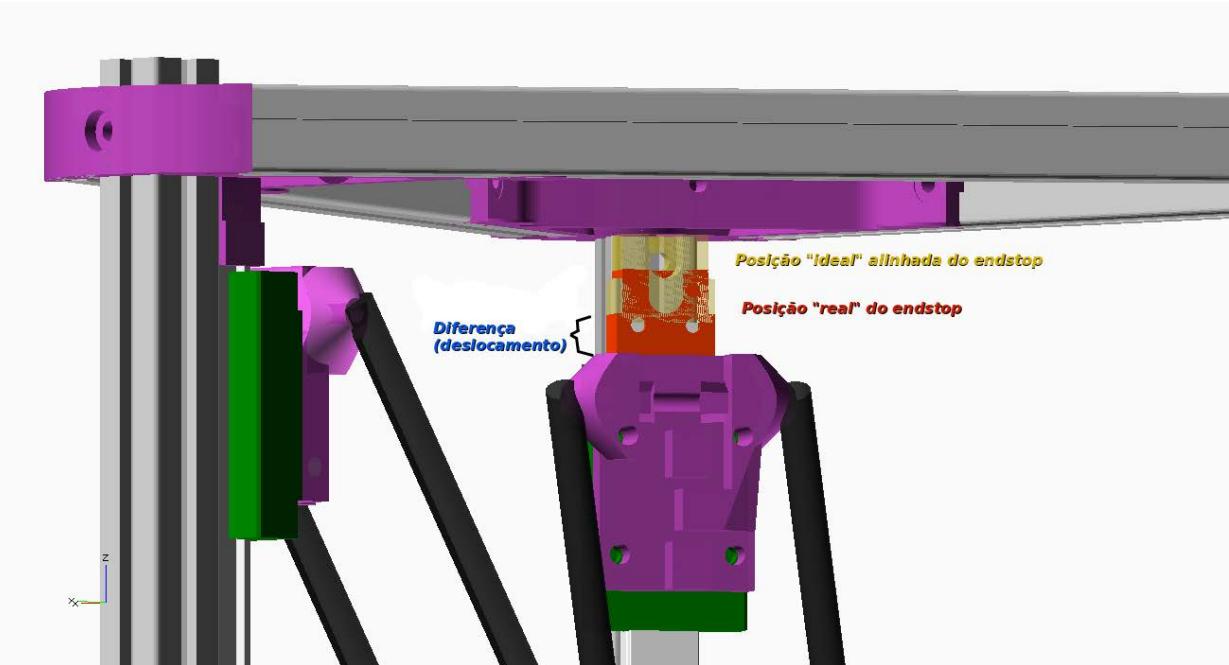


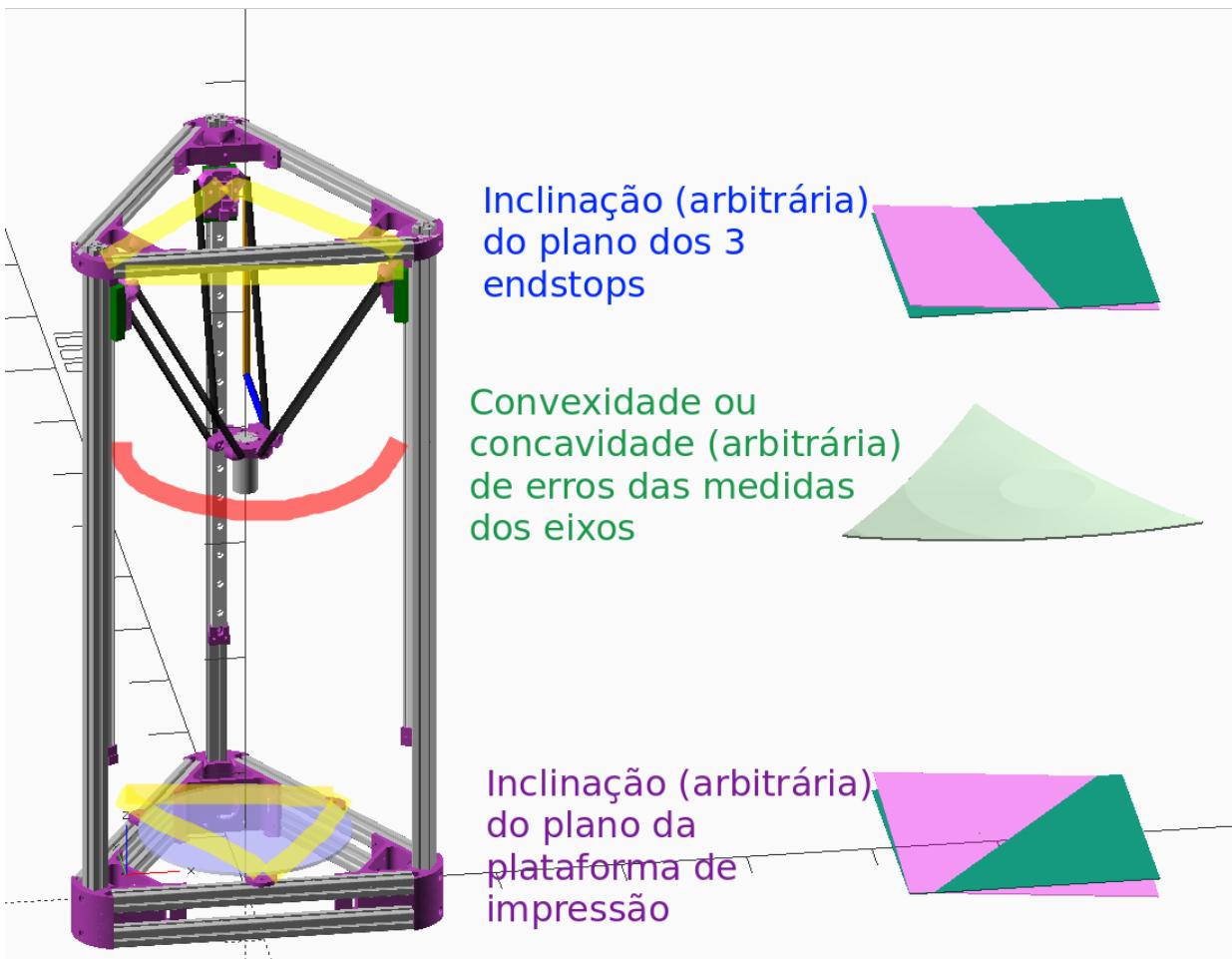
i



DELTA_RADIUS







M666

M665

RepRap Calculator - Prusa Printers - Mozilla Firefox

RepRap Calculator - Pru x +

www.prusaprinters.org/calculator/ Search JS

Stepper Motors

Steps per millimeter - belt driven systems

The result is theoretically right, but you might still need to calibrate your machine to get finest detail. This is good start tho.

If you struggle how to use this calculator, try asking in [steps per mm forum](#).

Motor step angle	Driver microstepping				
1.8° (200 per revolution)	1/32- uStep (Crazy Smoothieboard)				
Belt pitch (in mm)	Belt presets				
2	2mm Pitch (GT2 mainly)				
Pulley tooth count					
20					
Result	Resolution	Teeth	Step angle	Stepping	Belt
160.00 Click to Share!	6.25micron	20	1.8°	1/32th	2mm

Example

M92 g-code can set the steps per mm in real time. Here is an example with your result for X axis.

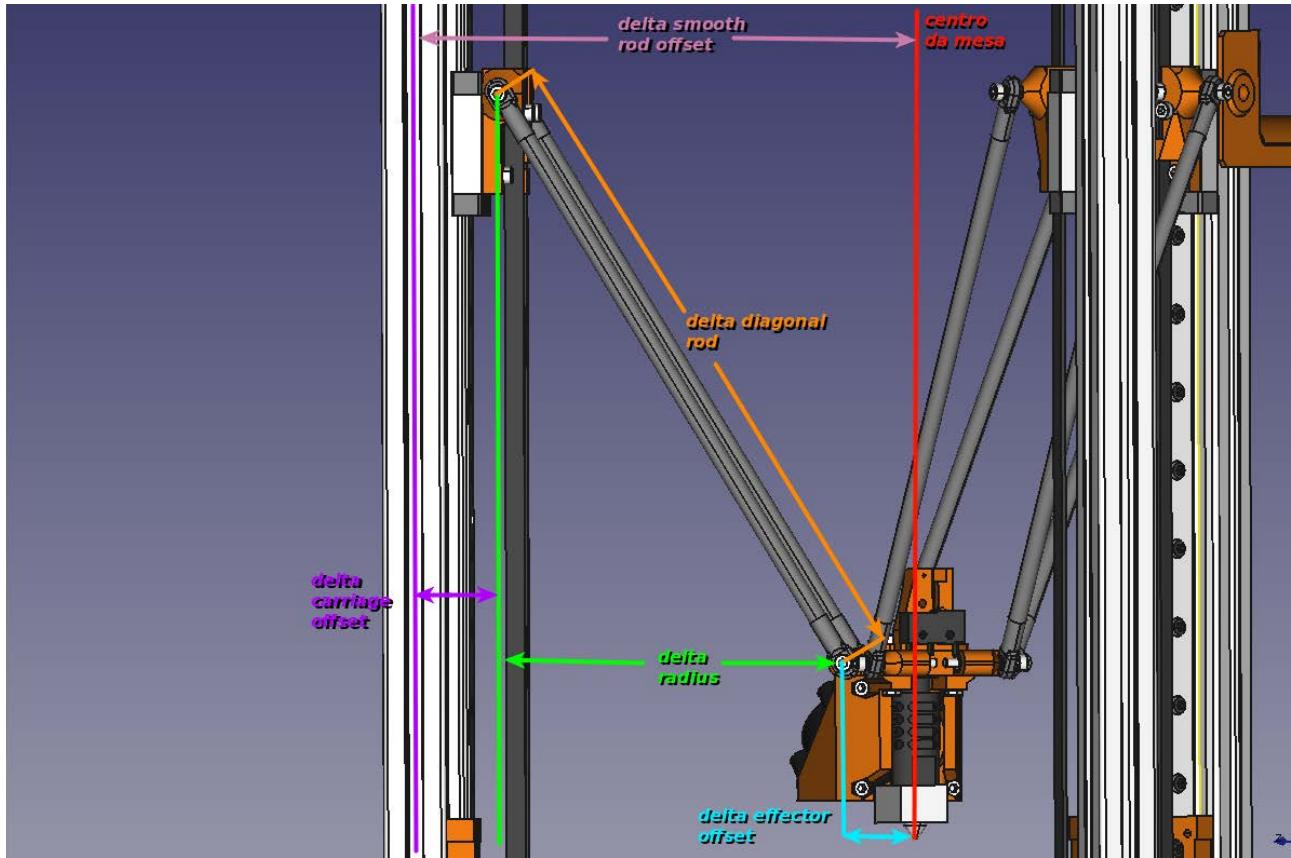
Configuration.h

```
#define DEFAULT_AXIS_STEPS_PER_UNIT \{ 160, 160, 160, 160, 760 } // 160.00 obtido da prusa
calculator pros eixos
```

M119

G28

M665



DELTA_DIAGONAL_ROD

DELTA_DIAGONAL_ROD

diagonal rod length

arm_length

L

DELTA_RADIUS

ROD_RADIUS

DELTA_RADIUS = DELTA_SMOOTH_ROD_OFFSET — DELTA_EFFECTOR_OFFSET — DELTA_CARRIAGE_OFFSET

M665

R

DELTA_SMOOTH_ROD_OFFSET

PRINTER_RADIUS

M665

G28

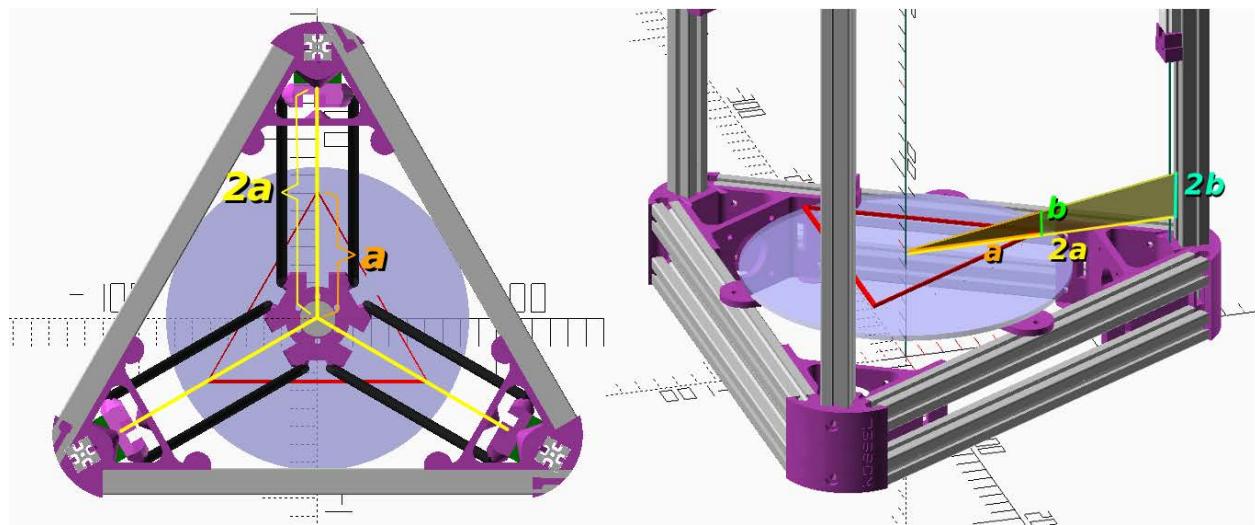
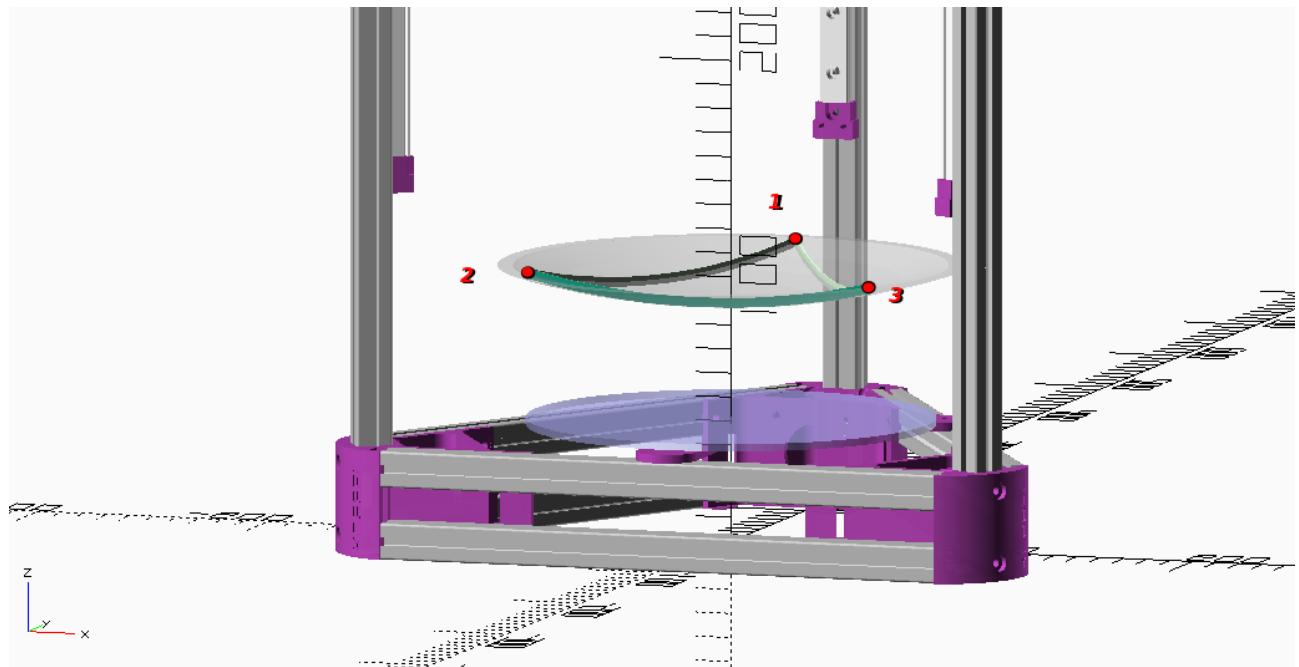
M114

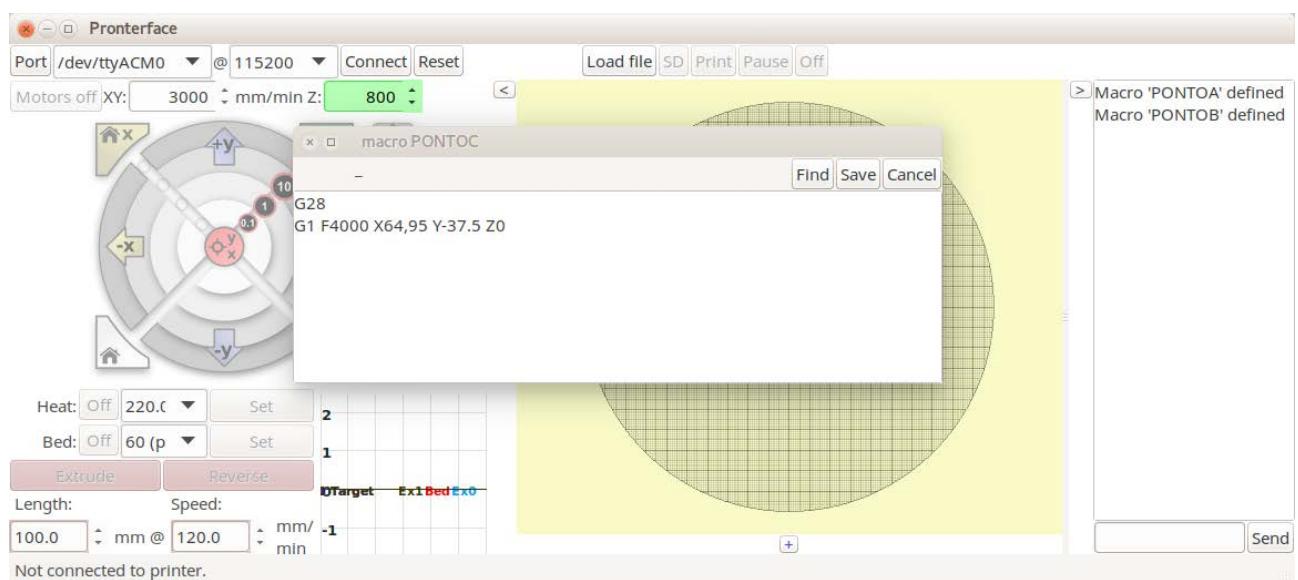
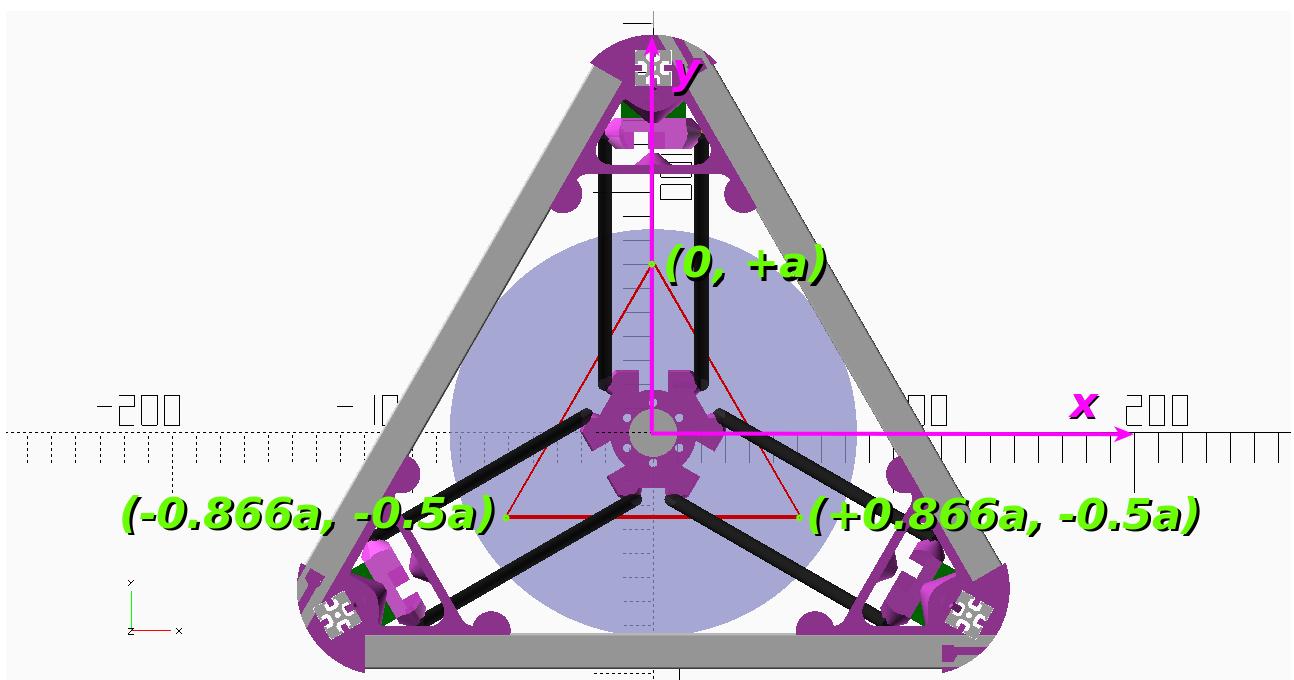
Configuration.h

```
#define DELTA_HEIGHT 250.00
```

M665 H188.50

DELTA_DIAGONAL_ROD





Z20

DELTA_HEIGHT

DELTA_HEIGHT

Configuration.h

Lnúmero DELTA_DIAGONAL_ROD

Rnúmero DELTA_RADIUS

Hnúmero DELTA_HEIGHT

Xnúmero

Ynúmero

Znúmero

DELTA_HEIGHT

DELTA_RADIUS DELTA_EFFECTOR_OFFSET

G28

G1 X-64.95 Y-37.5 Z20

G28

G1 X64.95 Y-37.5 Z20

G28

G1 X0 Y75 Z20

G28

G1 X-64.95 Y-37.5 Z15 ; continua acima da mesa

G1 X-64.95 Y-37.5 Z10 ; continua acima da mesa

G1 X-64.95 Y-37.5 Z8 ; continua acima da mesa

G1 X-64.95 Y-37.5 Z4 ; toca na mesa

DELTA_HEIGHT

M665 H196.00

M500 ; grava na EEPROM ou config.txt

G28

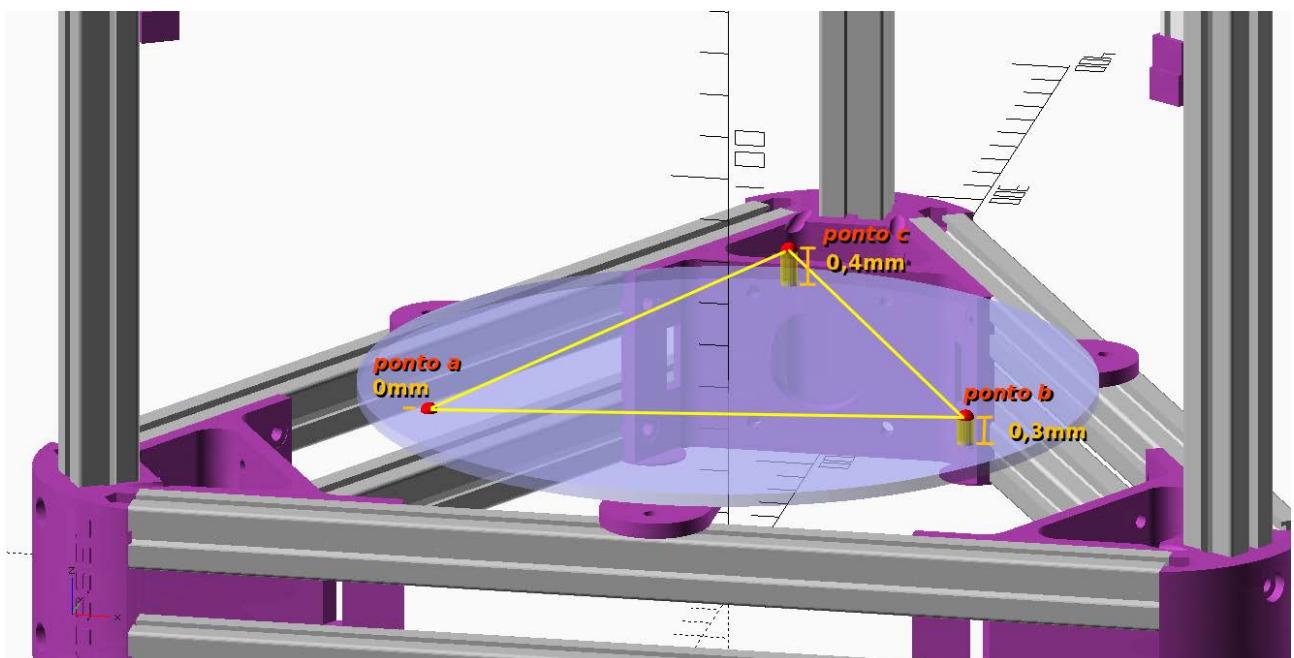
G1 X-64.95 Y-37.5 Z0

G28

G1 X64.95 Y-37.5 Z0

G28

G1 X0 Y75 Z0



DELTA_HEIGHT

M665

M666

DELTA_HEIGHT

M665 H195.77 ; redefine DELTA_HEIGHT para o centro ficar com Z=0

M666 X+0.23 Y-0.13 Z-0.33 ; colocam-se os deslocamentos

M500 ; grava na EEPROM/config

DELTA_HEIGHT

M666 X0 Y-0.36 Z-0.56 ; deslocamentos compensados com A em 0

M500 ; grava na EEPROM/config

G28

G1 X-64.95 Y-37.5 Z0.2 ; continua acima da mesa

G1 X-64.95 Y-37.5 Z0 ; tocou a mesa

G28

G1 X64.95 Y-37.5 Z0.2 ; continua acima da mesa

G1 X64.95 Y-37.5 Z0 ; tocou a mesa

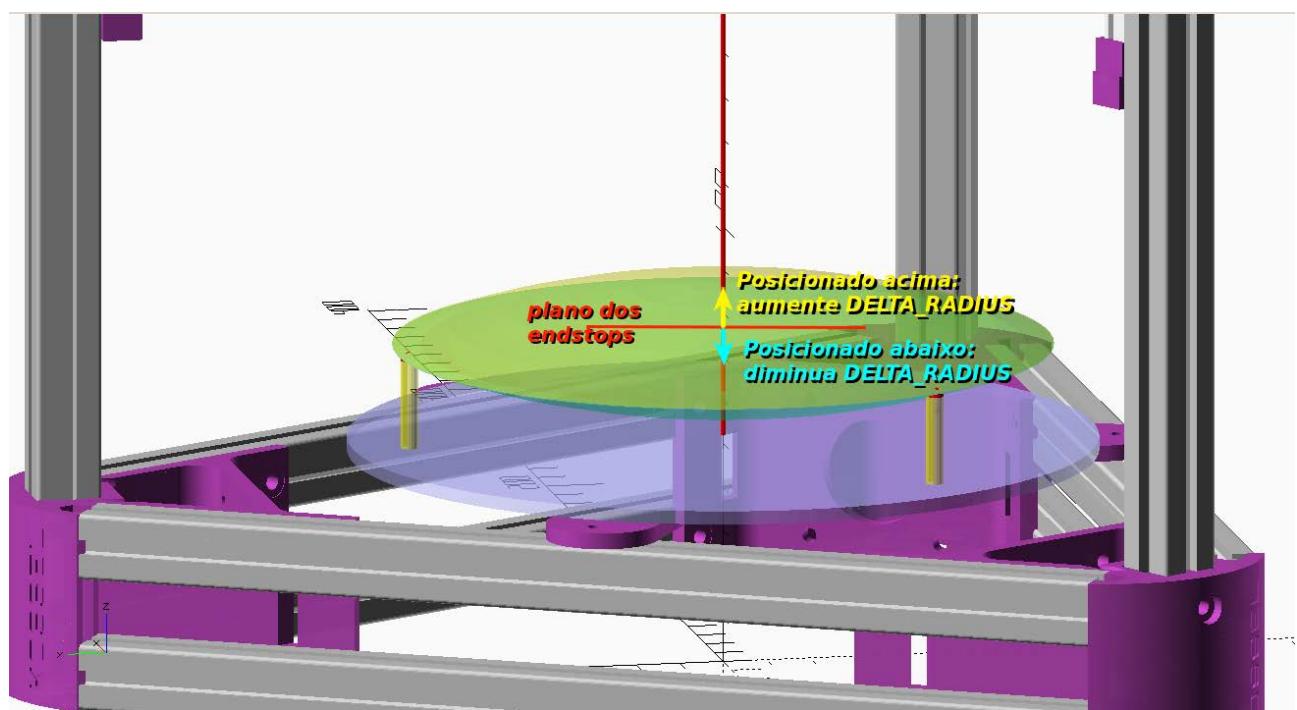
G28

G1 X0 Y75 Z0.2 ; continua acima da mesa

G1 X0 Y75 Z0 ; tocou a mesa.

G28

G1 X0 Y0 Z20



DELTA_RADIUS

DELTA_RADIUS

DELTA_RADIUS

DELTA_RADIUS

M665 Rnúmero

DELTA_RADIUS

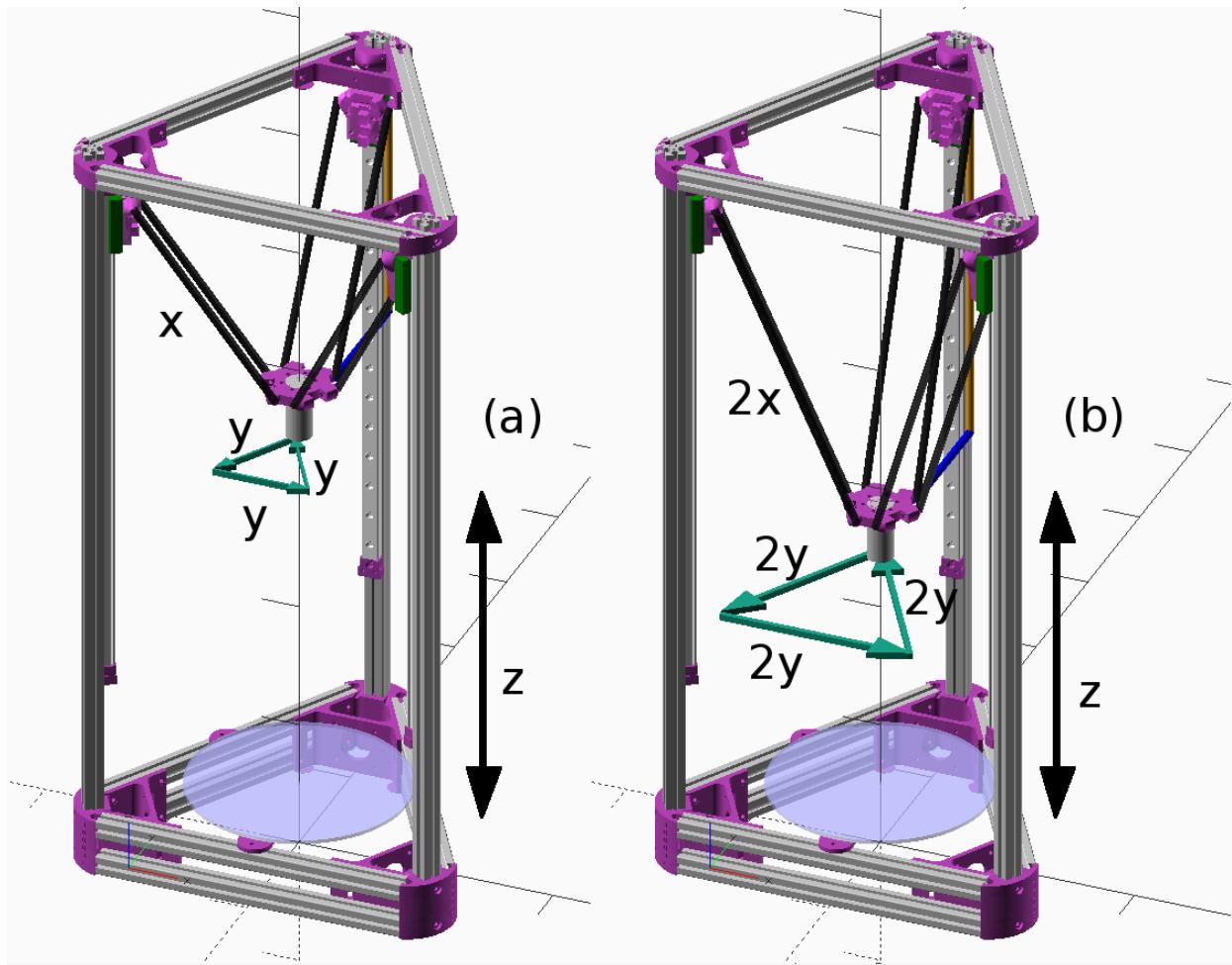
```
M666 R108.6 ; ajusta DELTA_RADIUS
M500 ; grava no firmware / config
G28 ; homing
G1 X0 Y0 Z10 ; margem de segurança, para não batermos na mesa.
G1 X0 Y0 Z5 ; margem de segurança, ainda estamos longe
G1 X0 Y0 Z1 ; ainda não encostou
G1 X0 Y0 Z0.1 ; encostou na mesa. Estamos acima do plano.
M666 R108.5 ; diminuímos DELTA_RADIUS de um décimo de milímetro
M500 ; gravamos no firmware
G28 ; homing para zerar às posições
G1 X0 Y0 Z0.1 ; não encostou na mesa, mas ficou bem próximo.
G1 X0 Y0 Z0 ; o hotend encostou na mesa. Calibrarmos DELTA_RADIUS!
```

DELTA_RADIUS

DELTA_DIAGONAL_ROD

DELTA_DIAGONAL_ROD

DELTA_DIAGONAL_ROD



DELTA_DIAGONAL_ROD

DELTA_DIAGONAL_ROD

M666 L250

M500

i

DELTA_HEIGHT Height:número

Ex: \pm número

Ey: \pm número

Ez: \pm número

DELTA_RADIUS Radius:número

Tx Ty Tz

DELTA_DIAGONAL_ROD

M500

G33

G33 P4 C0.05 T0 ; sonda 16 pontos (4x4) e pára quando um desvio-padrão
; de 0,05mm é alcançado. Calibra DELTA_HEIGHT, endstops
; e DELTA_RADIUS, não calibra ângulos das torres.

```
G33 Auto Calibrate
Checking... AC
. Height:297.78    Ex:+0.00   Ey:+0.00   Ez:+0.00   Radius:100.00
Iteration : 01                                std dev:0.317
. Height:297.65    Ex:-0.15   Ey:-0.16   Ez:+0.00   Radius:100.80
Iteration : 02                                std dev:0.059
. Height:297.66    Ex:-0.17   Ey:-0.13   Ez:+0.00   Radius:100.91
Calibration OK                                std dev:0.042
. Height:297.66    Ex:-0.17   Ey:-0.13   Ez:+0.00   Radius:100.91
Save with M500 and/or copy to Configuration.h
```

G33 ; calibra com ajustes default

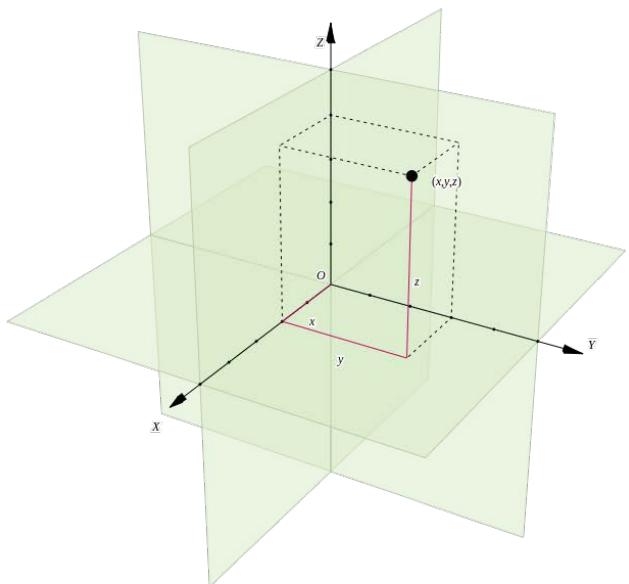
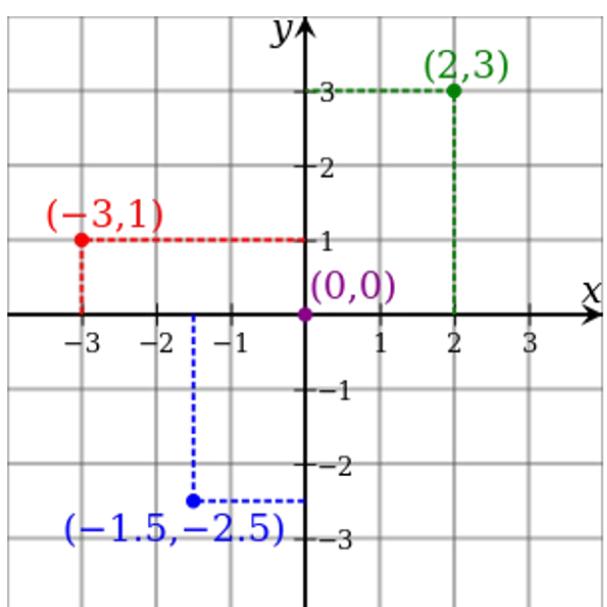
G33 Auto Calibrate

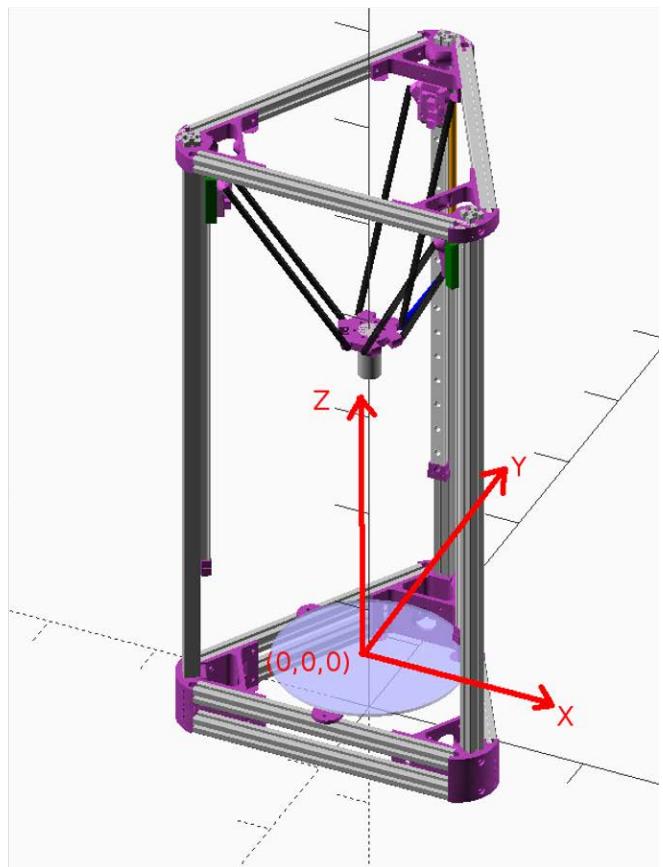
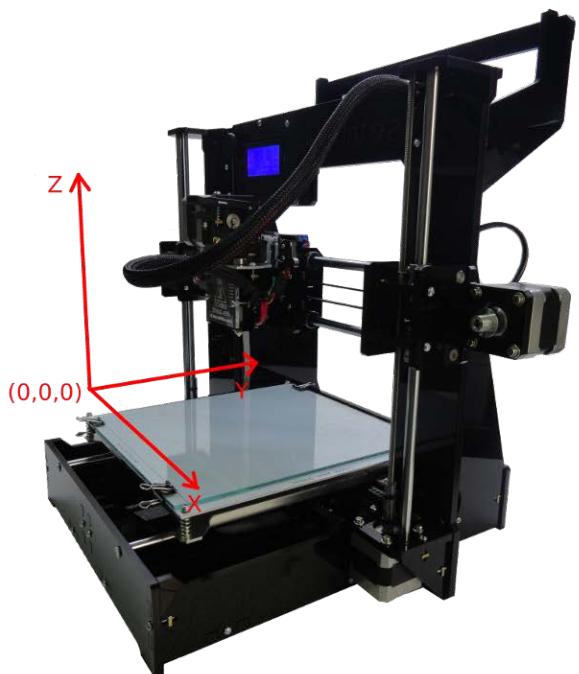
Checking... AC

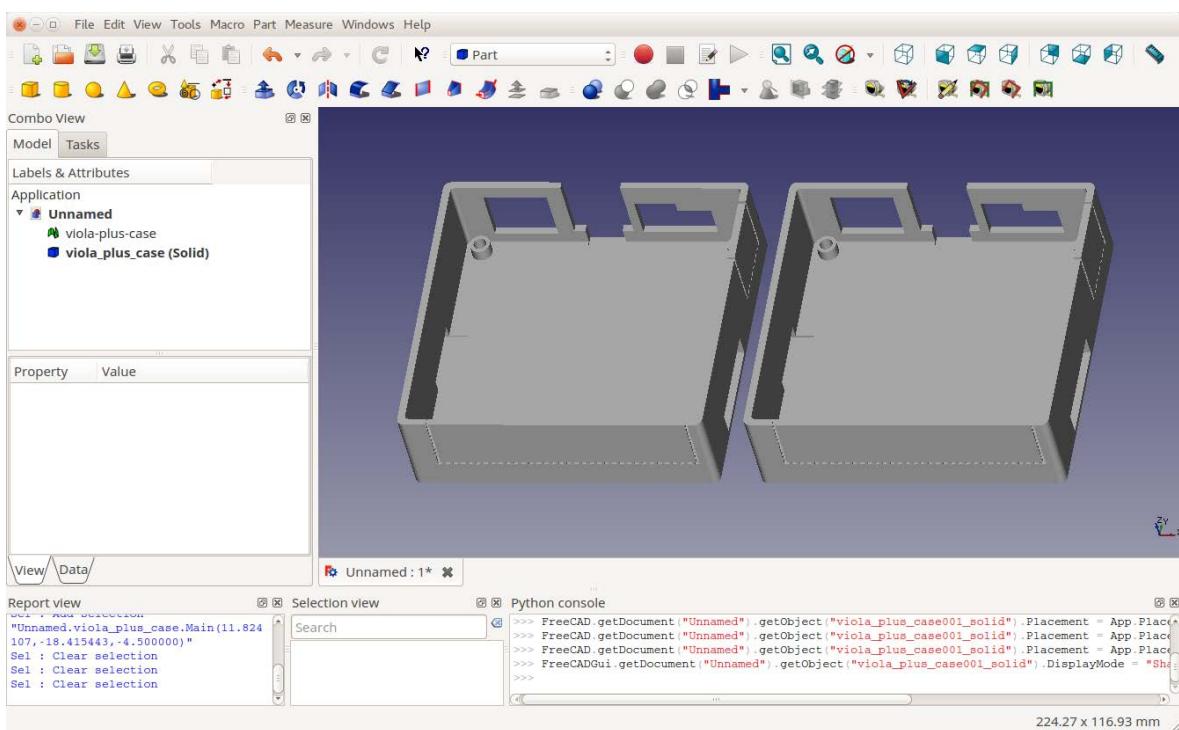
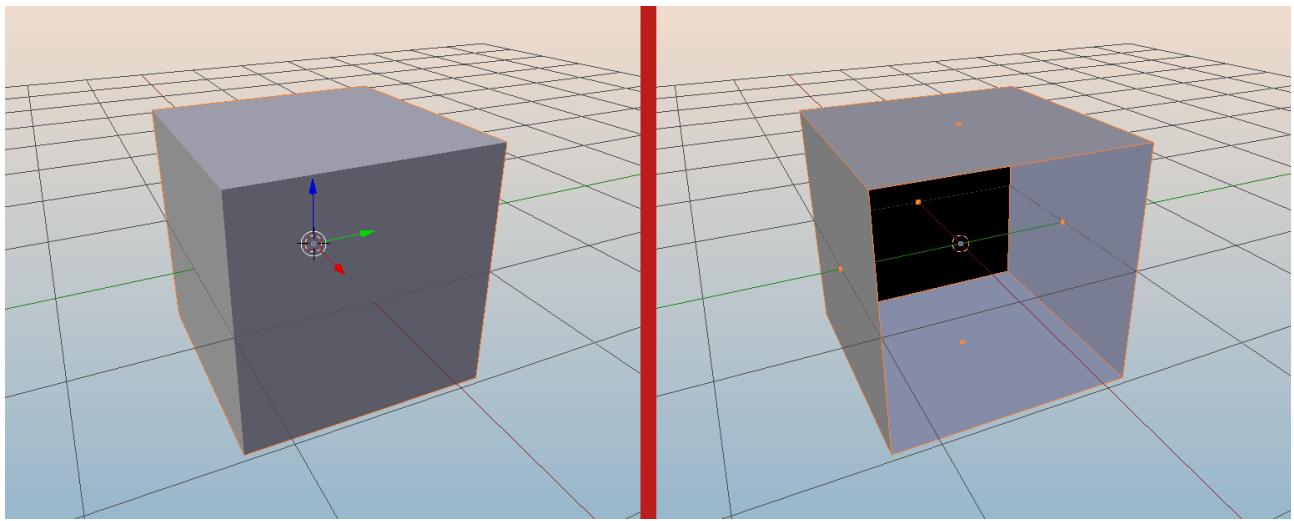
.Height:297.77 Ex:+0.00 Ey:+0.00 Ez:+0.00 Radius:100.00
.Tower angle : Tx:+0.00 Ty:+0.00 Tz:+0.00
Iteration : 01 std dev:0.306
.Height:297.65 Ex:-0.15 Ey:-0.14 Ez:+0.00 Radius:100.77
.Tower angle : Tx:-0.02 Ty:+0.11 Tz:+0.00
Iteration : 02 std dev:0.049
.Height:297.67 Ex:-0.12 Ey:-0.12 Ez:+0.00 Radius:100.87
.Tower angle : Tx:-0.03 Ty:+0.20 Tz:+0.00
Iteration : 03 std dev:0.033
.Height:297.69 Ex:-0.10 Ey:-0.12 Ez:+0.00 Radius:100.91
.Tower angle : Tx:-0.03 Ty:+0.25 Tz:+0.00
Iteration : 04 std dev:0.031
.Height:297.69 Ex:-0.07 Ey:-0.11 Ez:+0.00 Radius:100.92
.Tower angle : Tx:-0.03 Ty:+0.30 Tz:+0.00
Calibration OK rolling back.
.Height:297.69 Ex:-0.10 Ey:-0.12 Ez:+0.00 Radius:100.91
.Tower angle : Tx:-0.03 Ty:+0.25 Tz:+0.00
Save with M500 and/or copy to Configuration.h

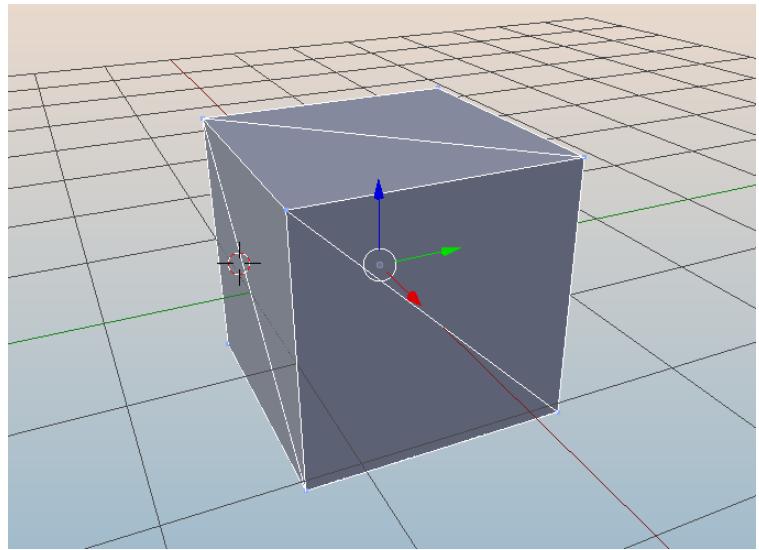
DELTA_DIAGONAL_ROD

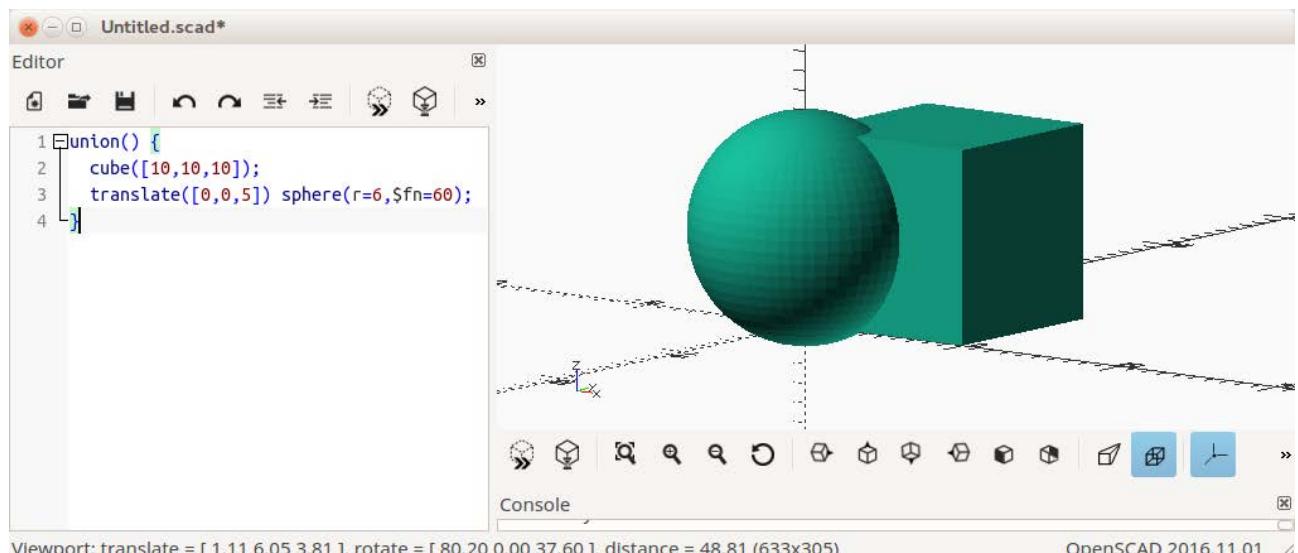
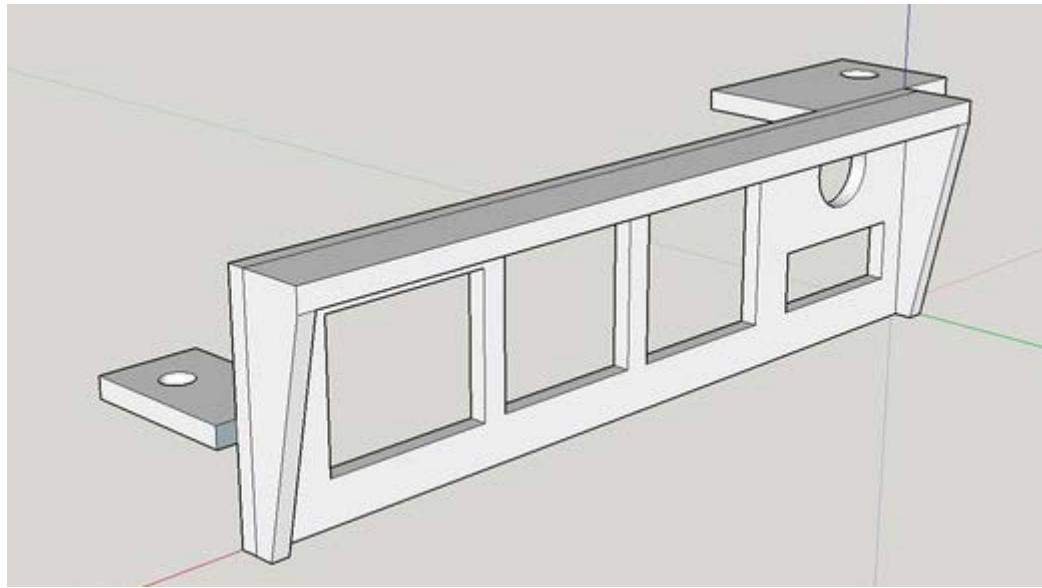


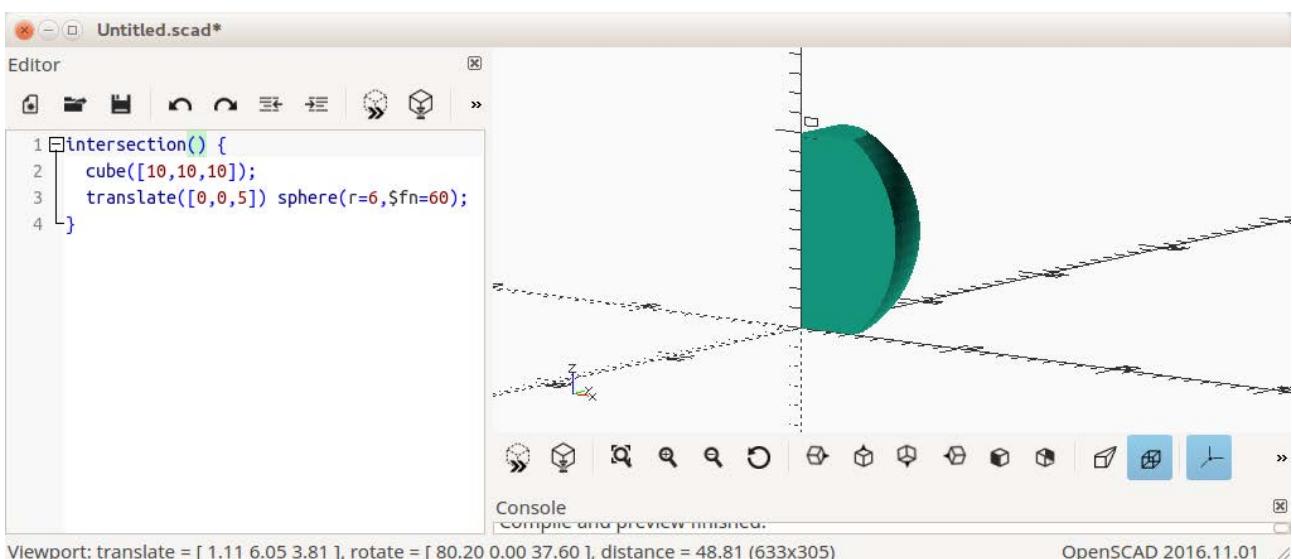
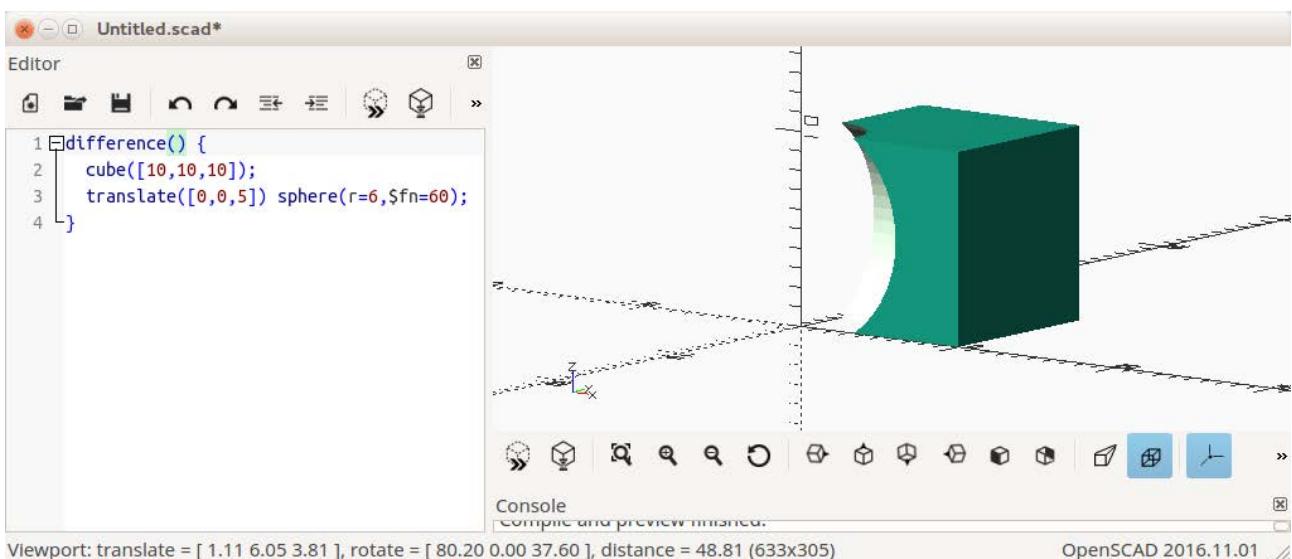


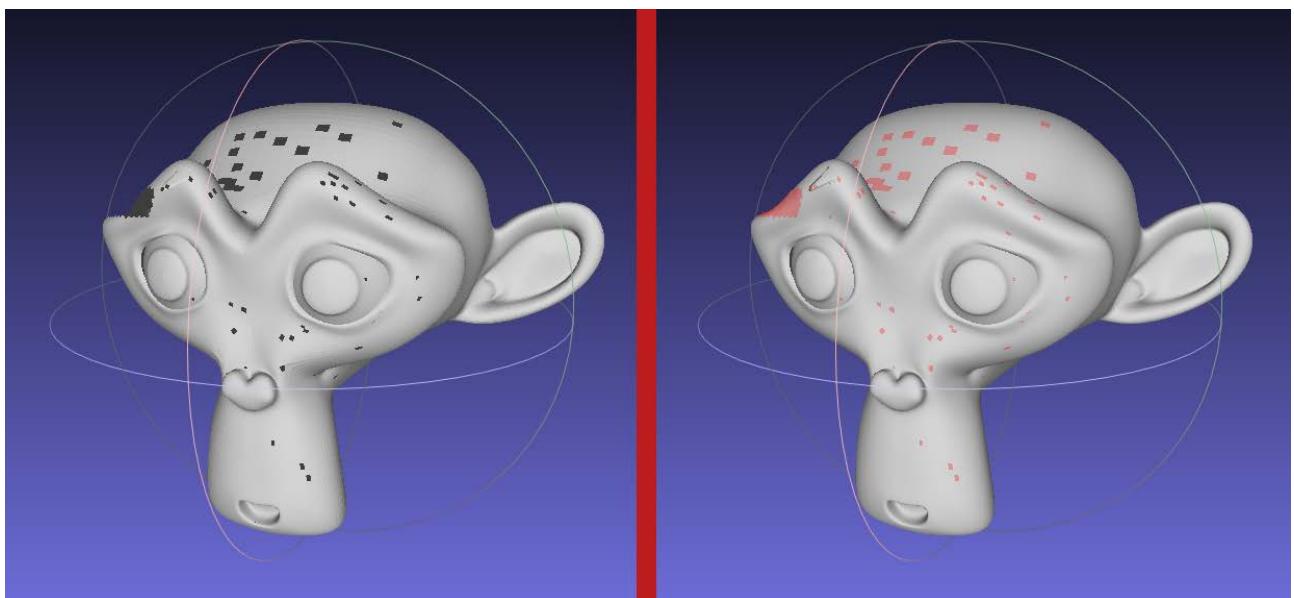


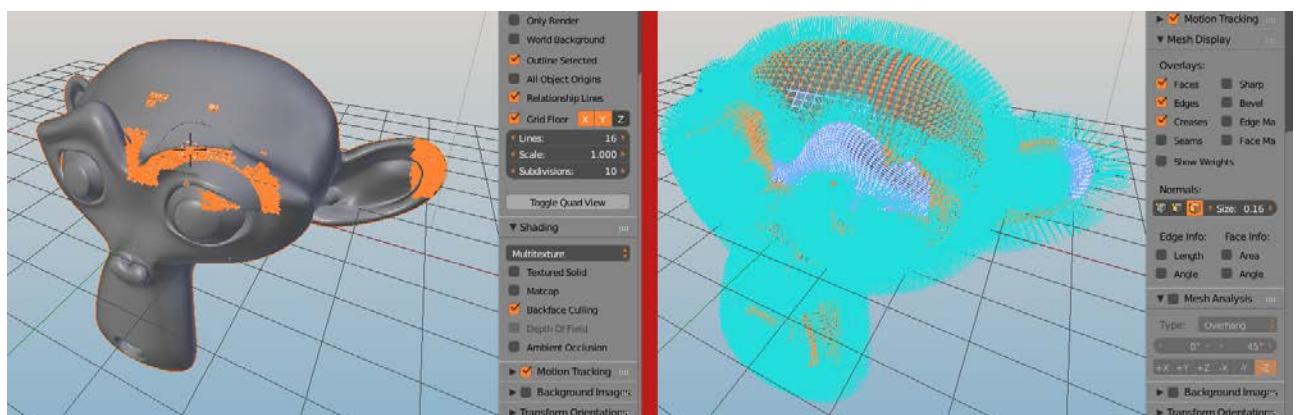
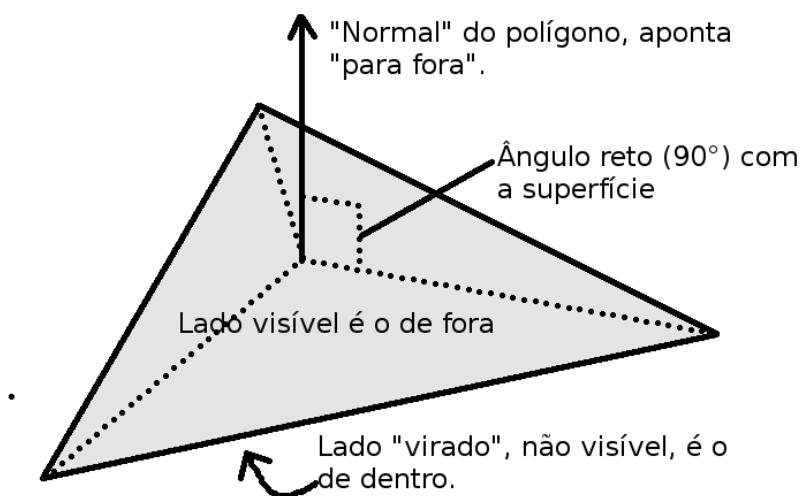


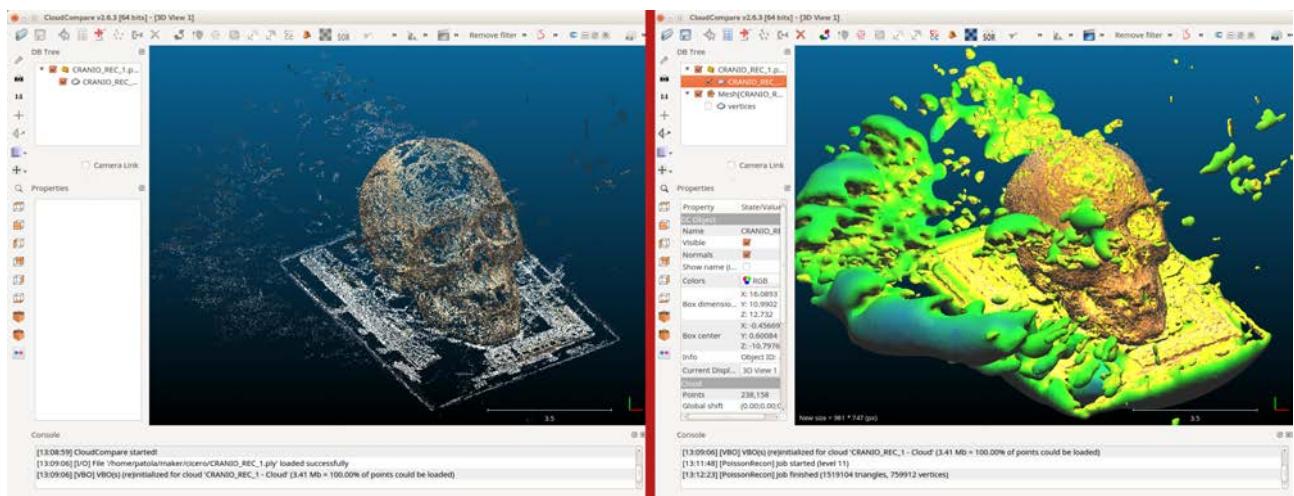


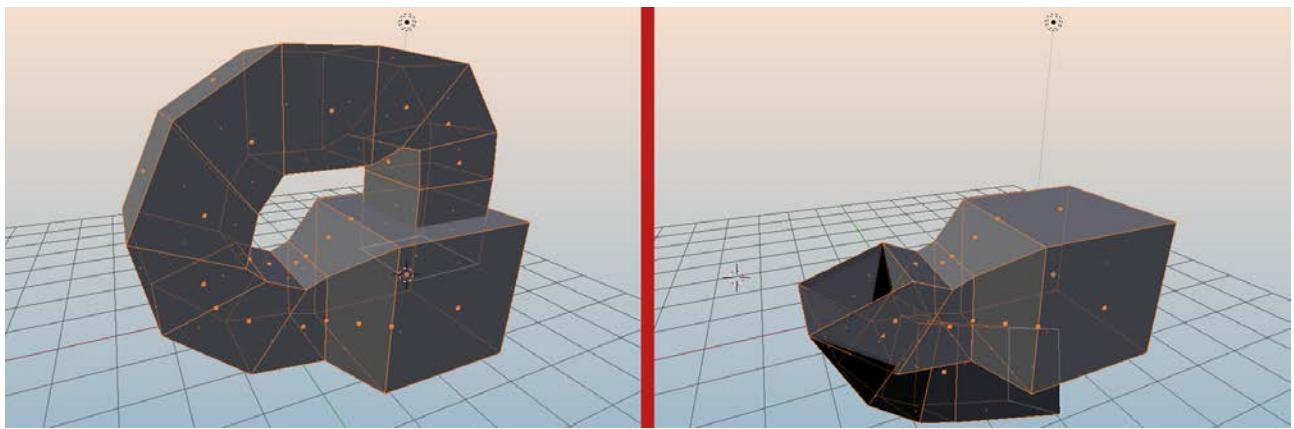


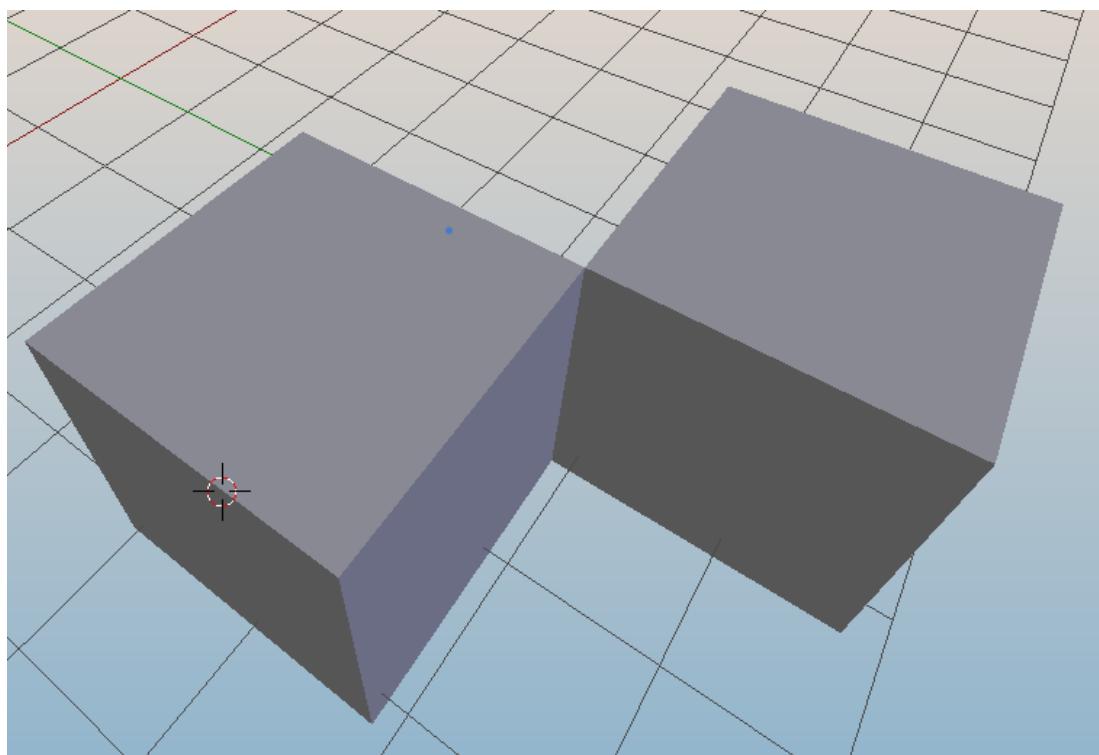
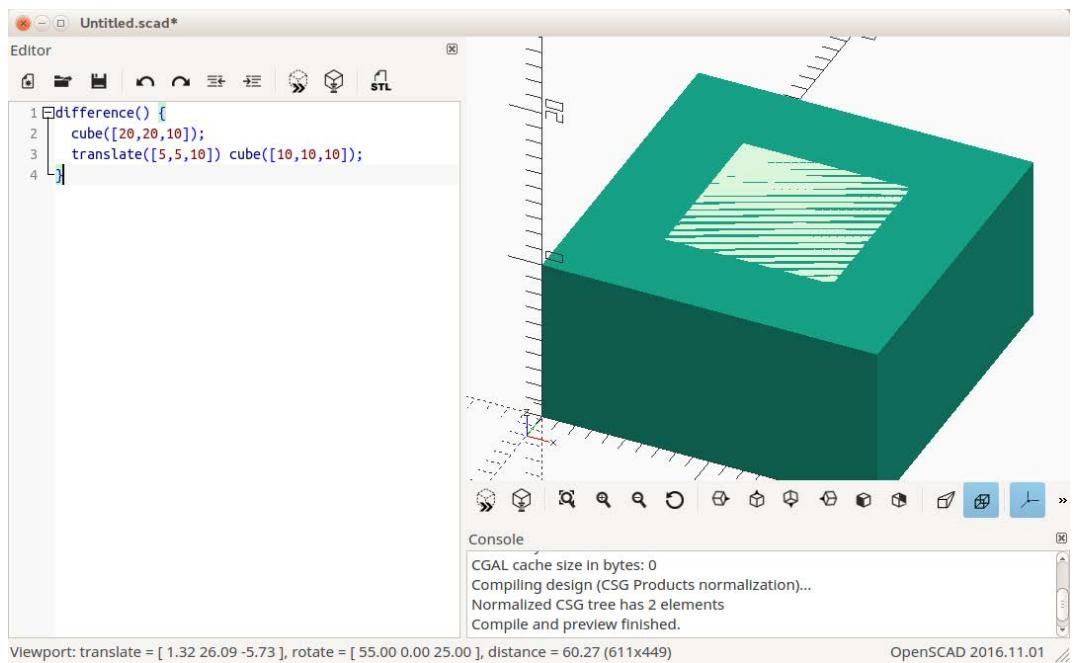


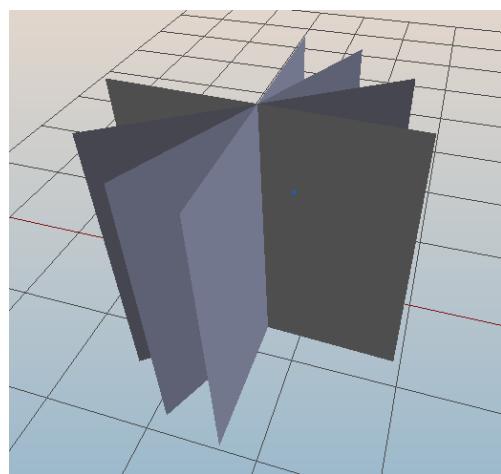
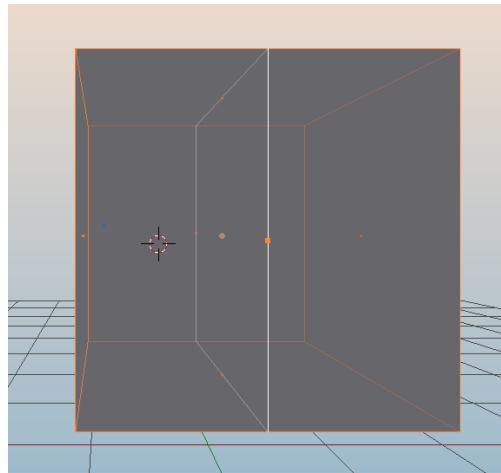


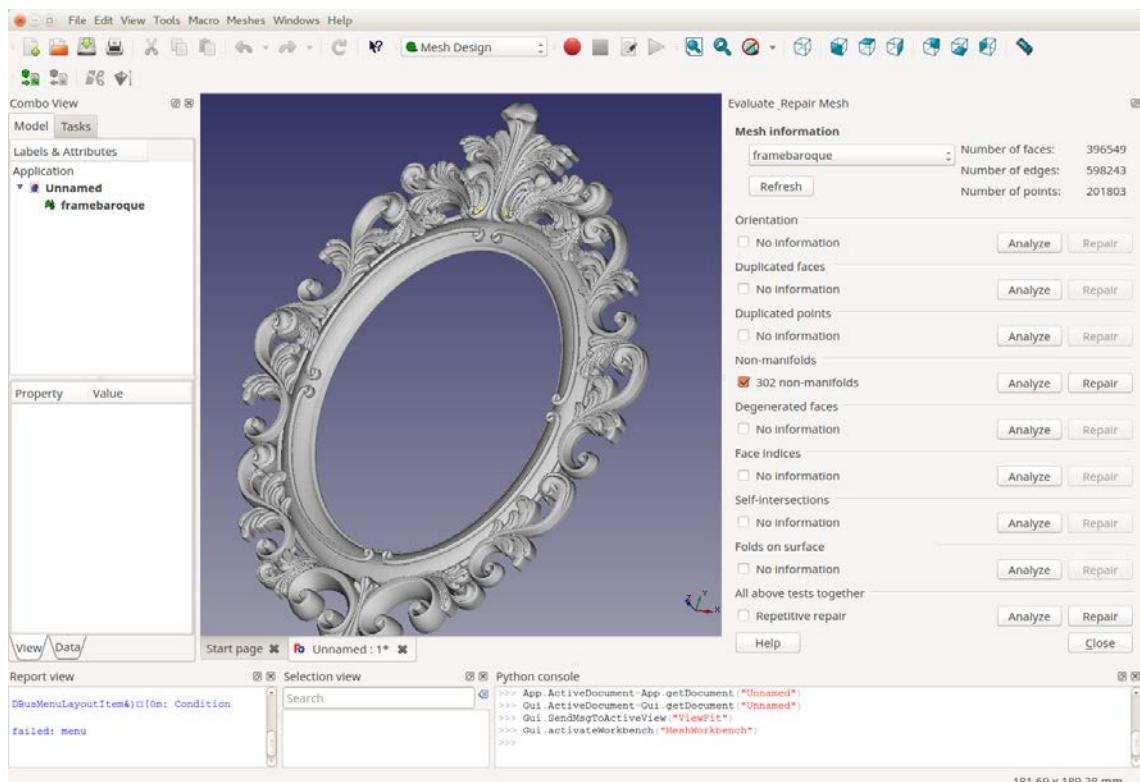


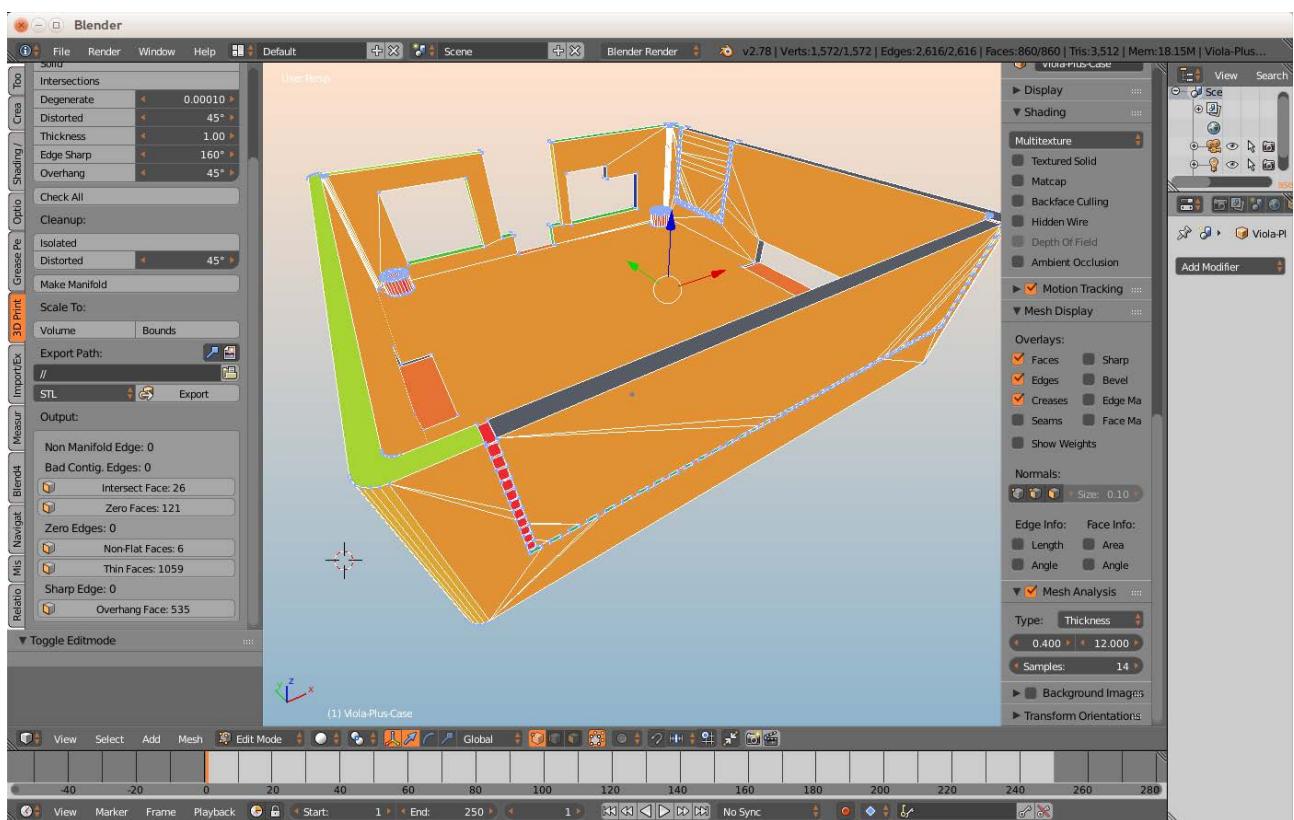
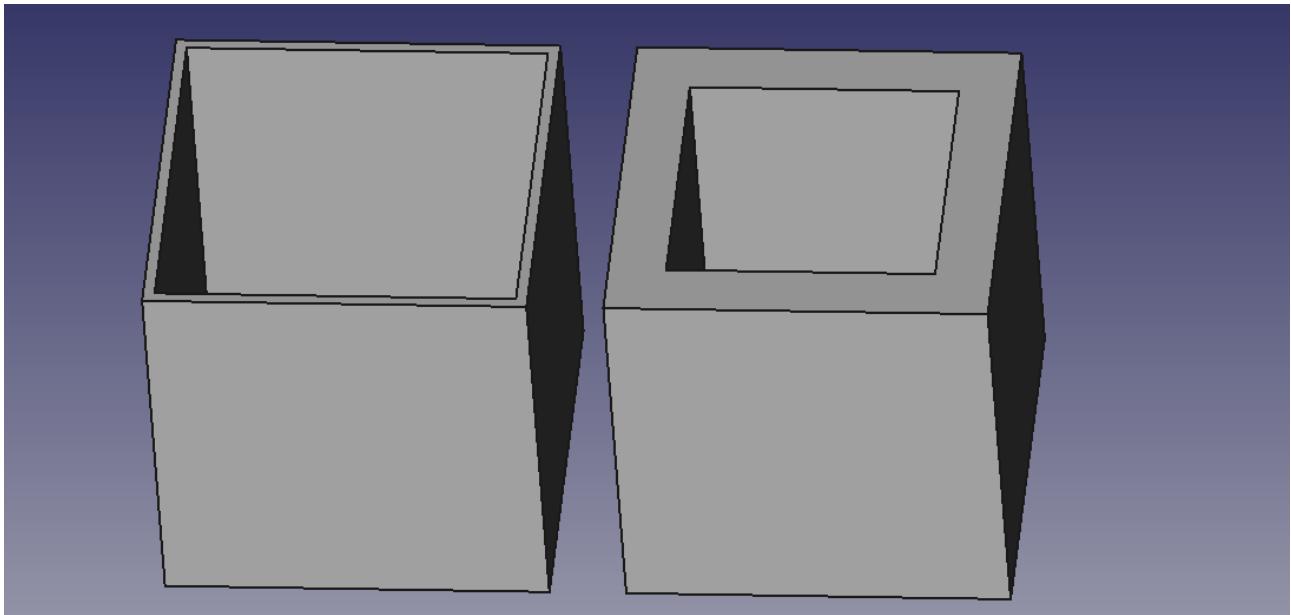


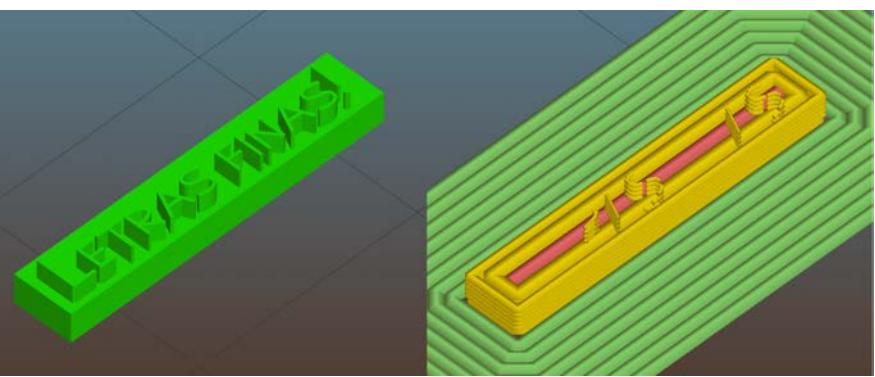


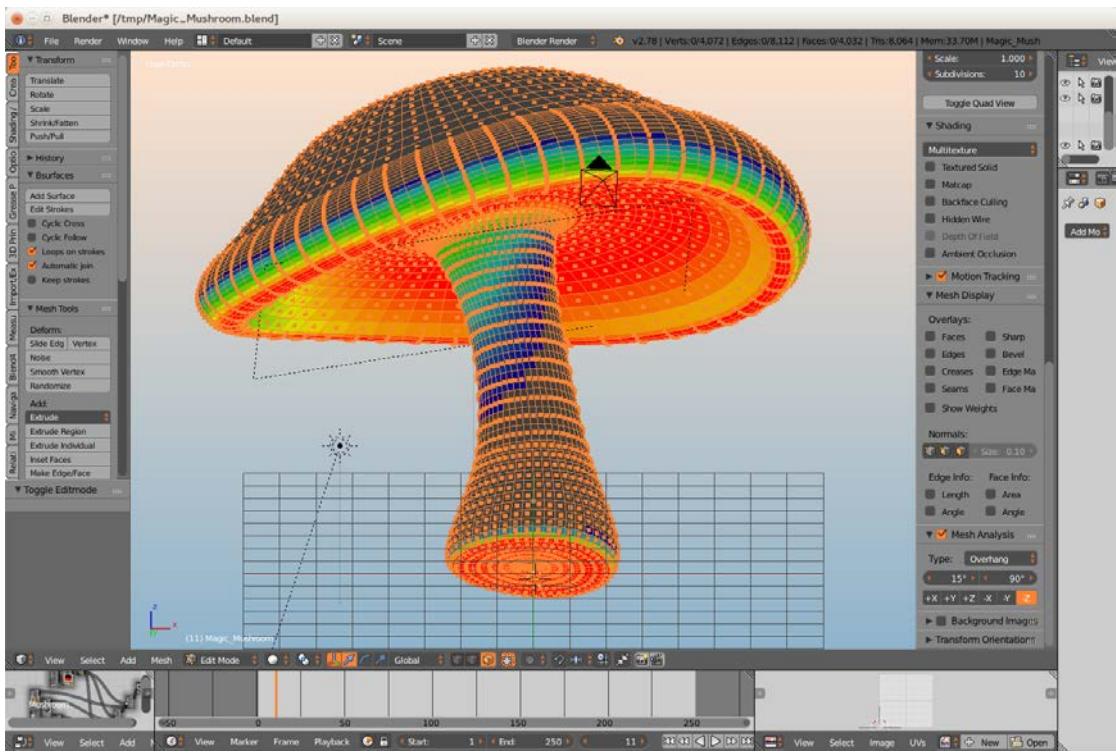


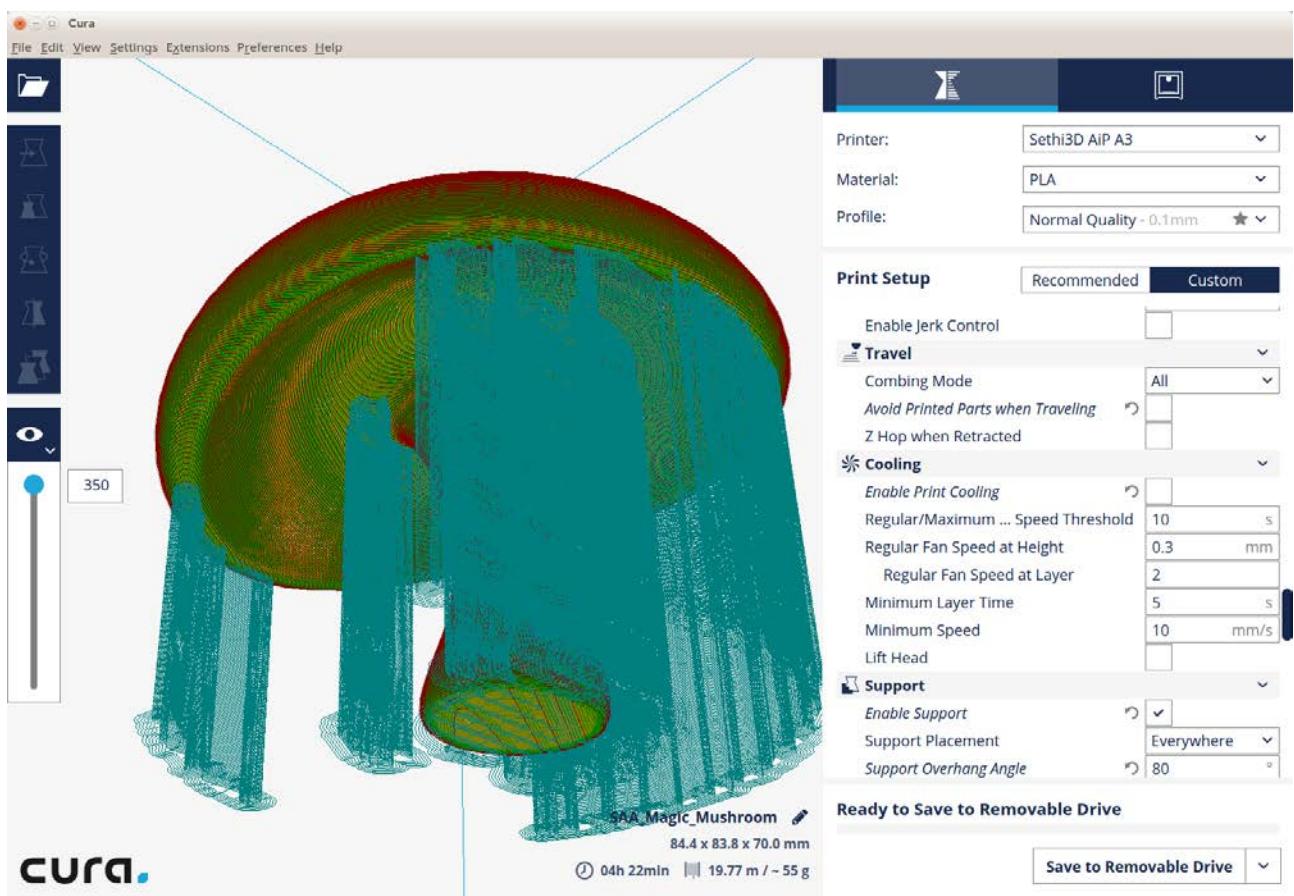


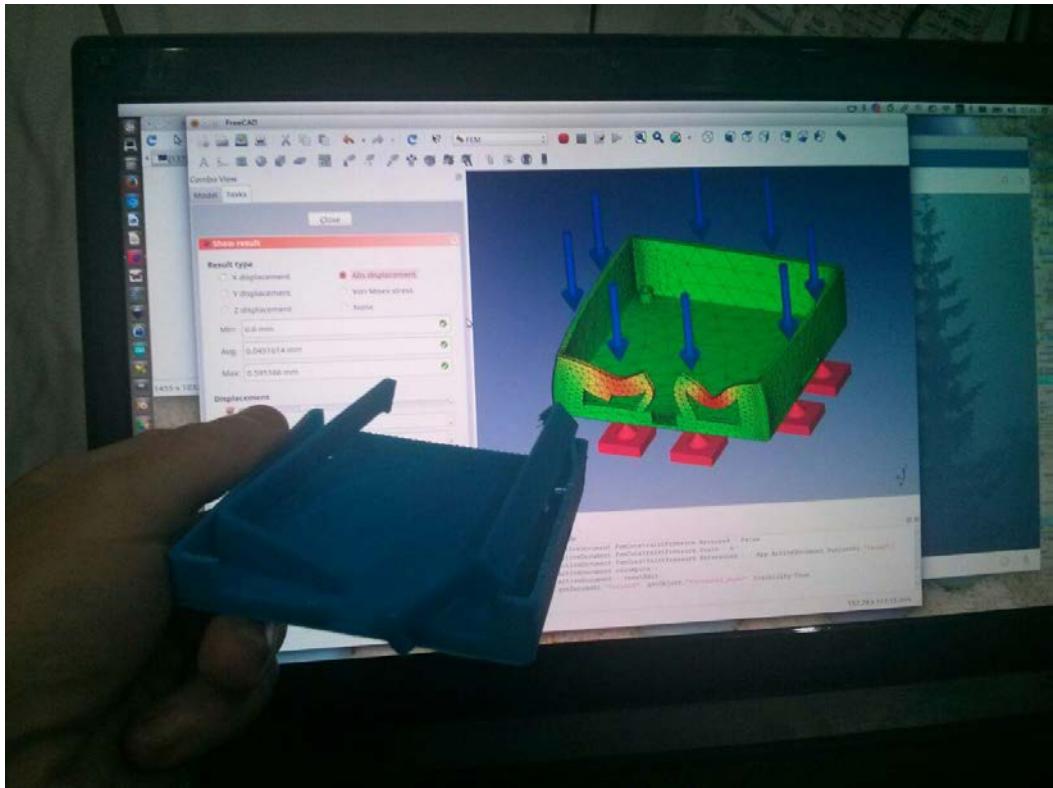


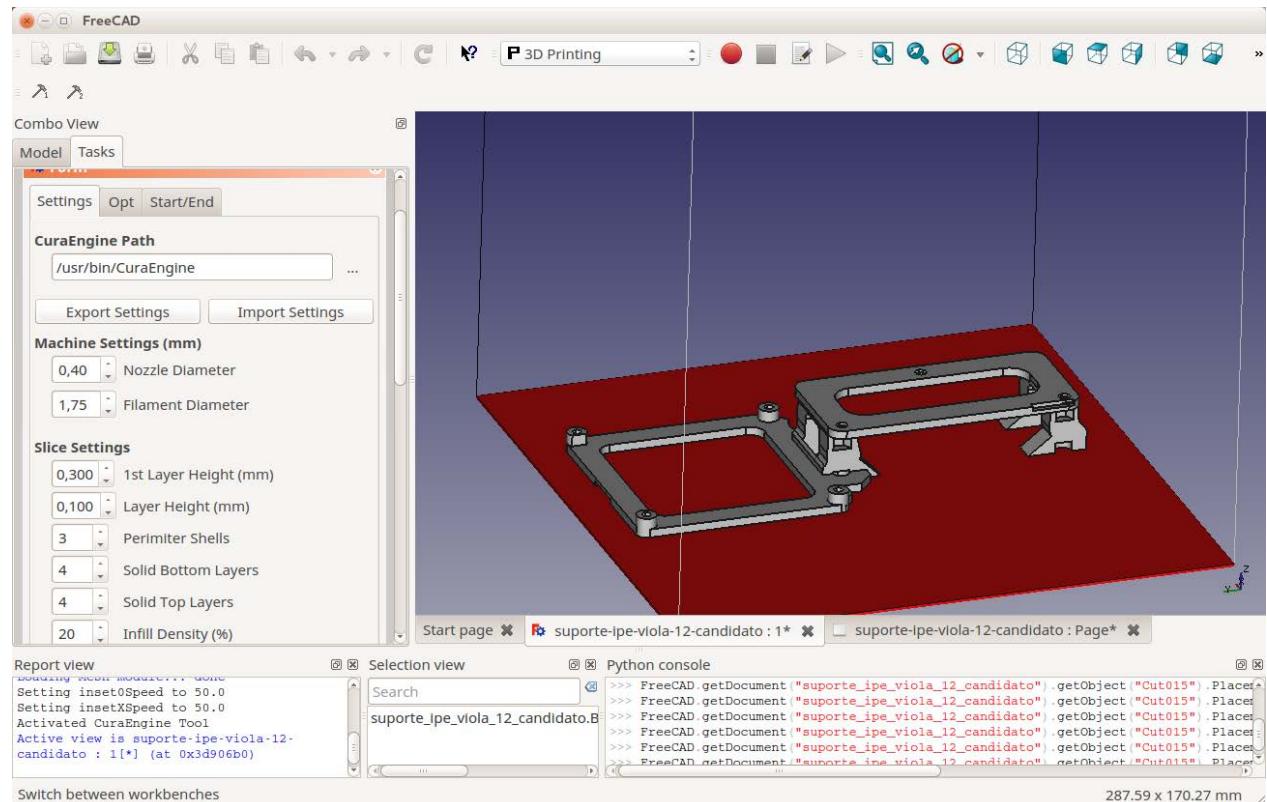


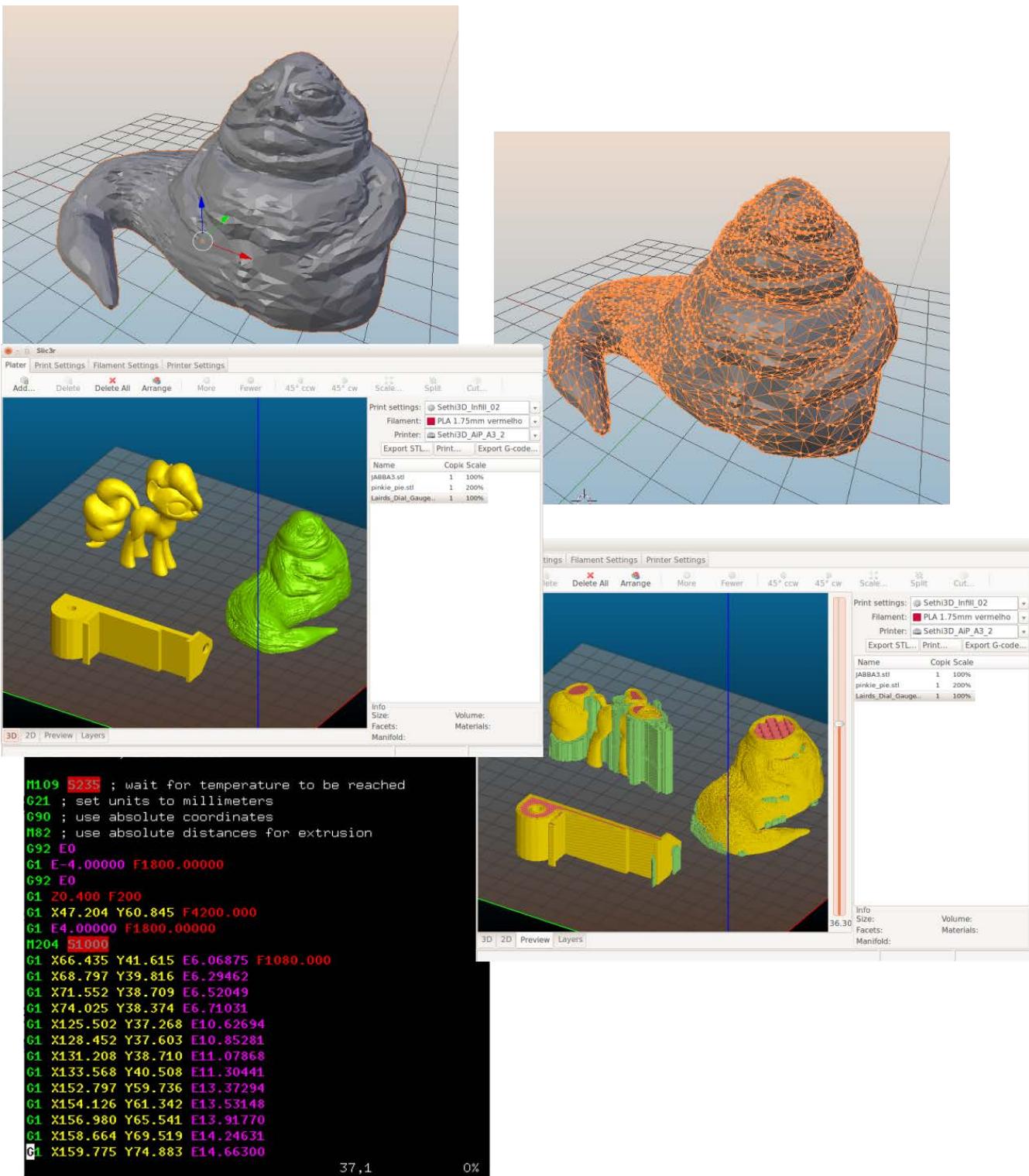


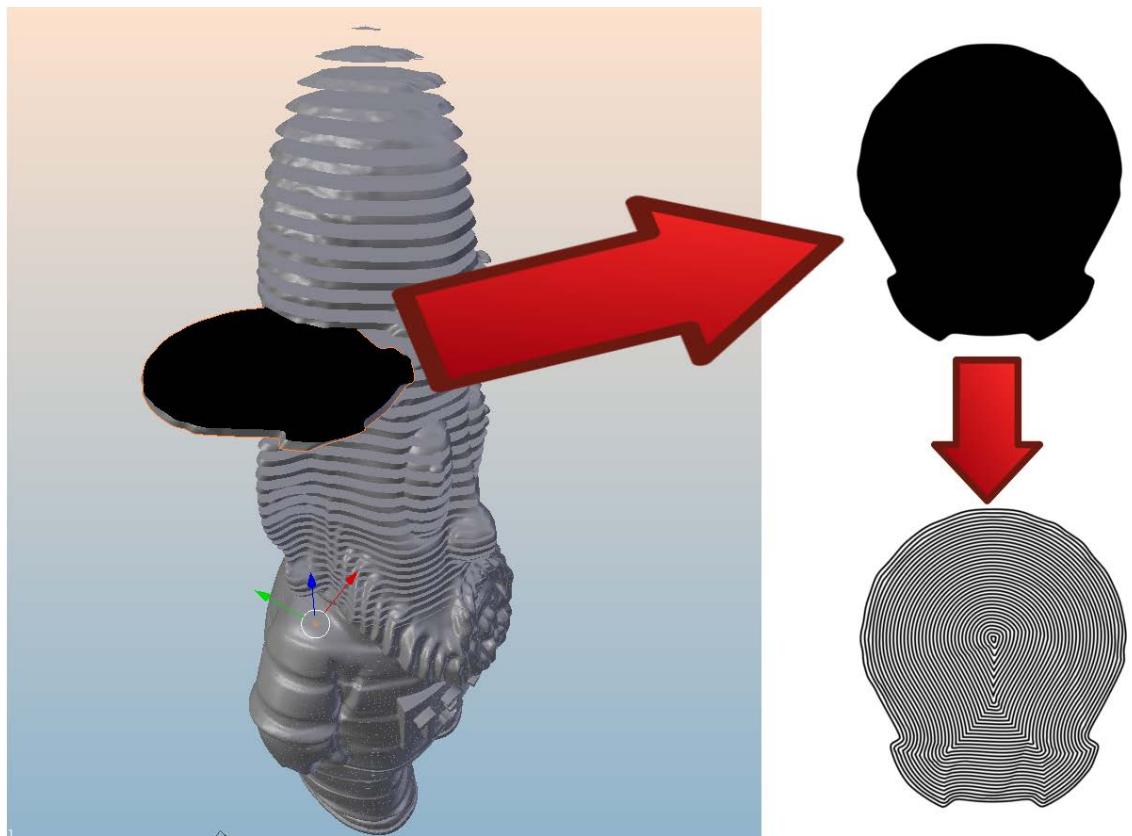


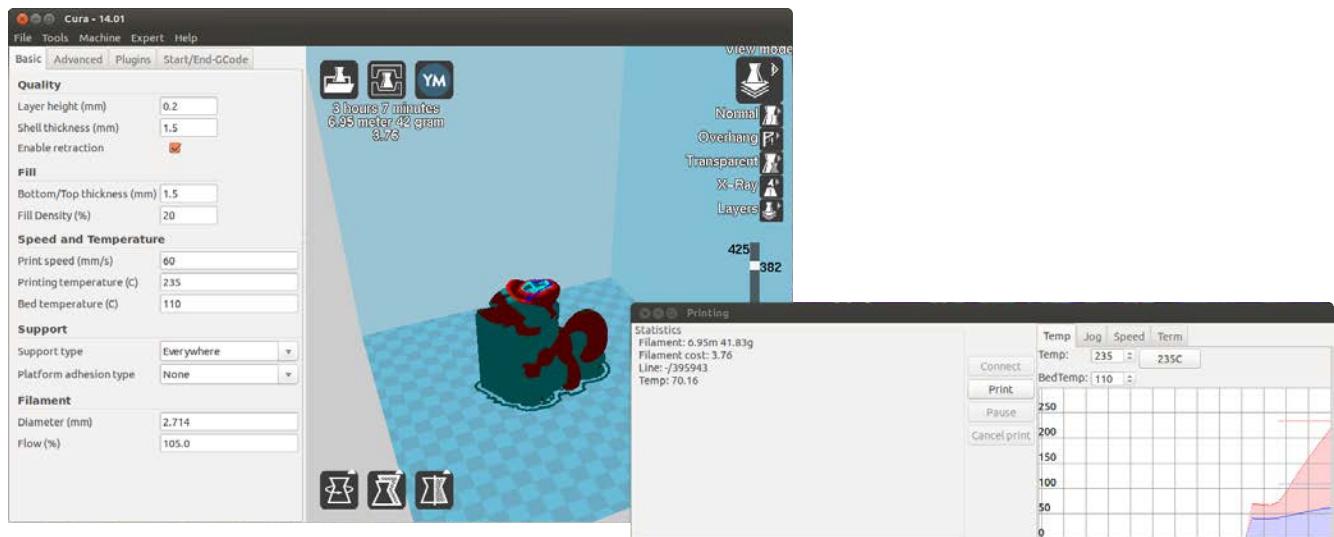
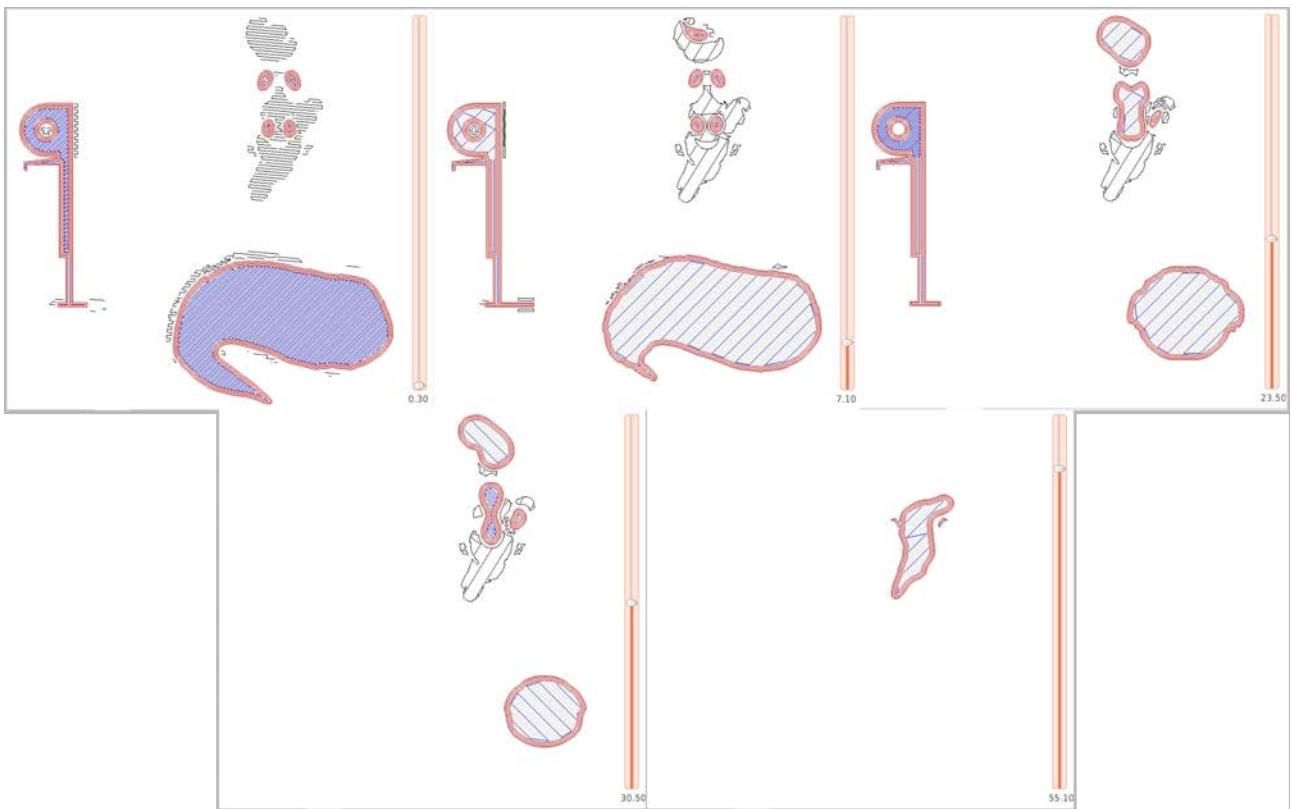


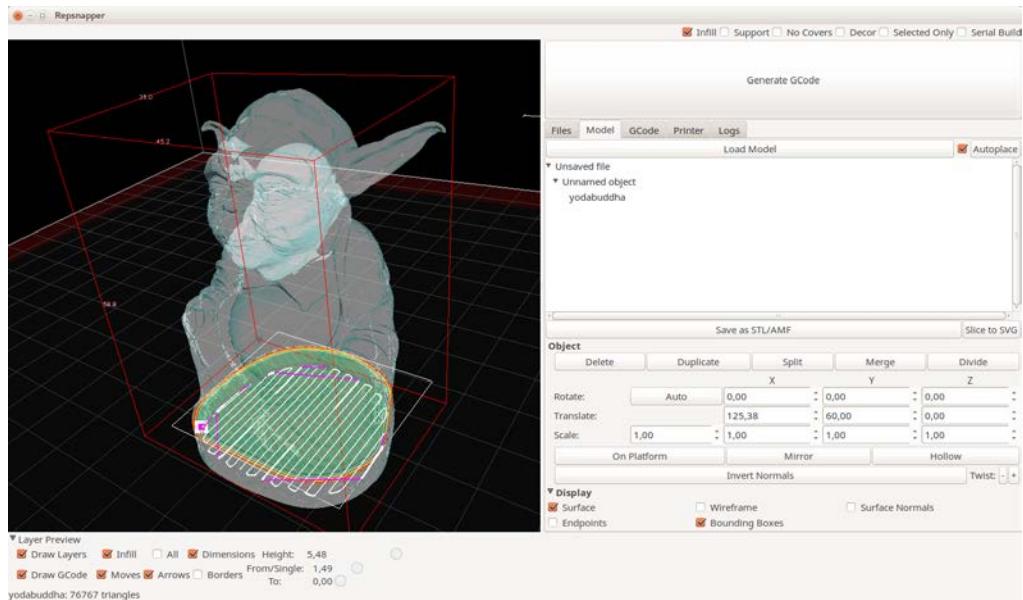


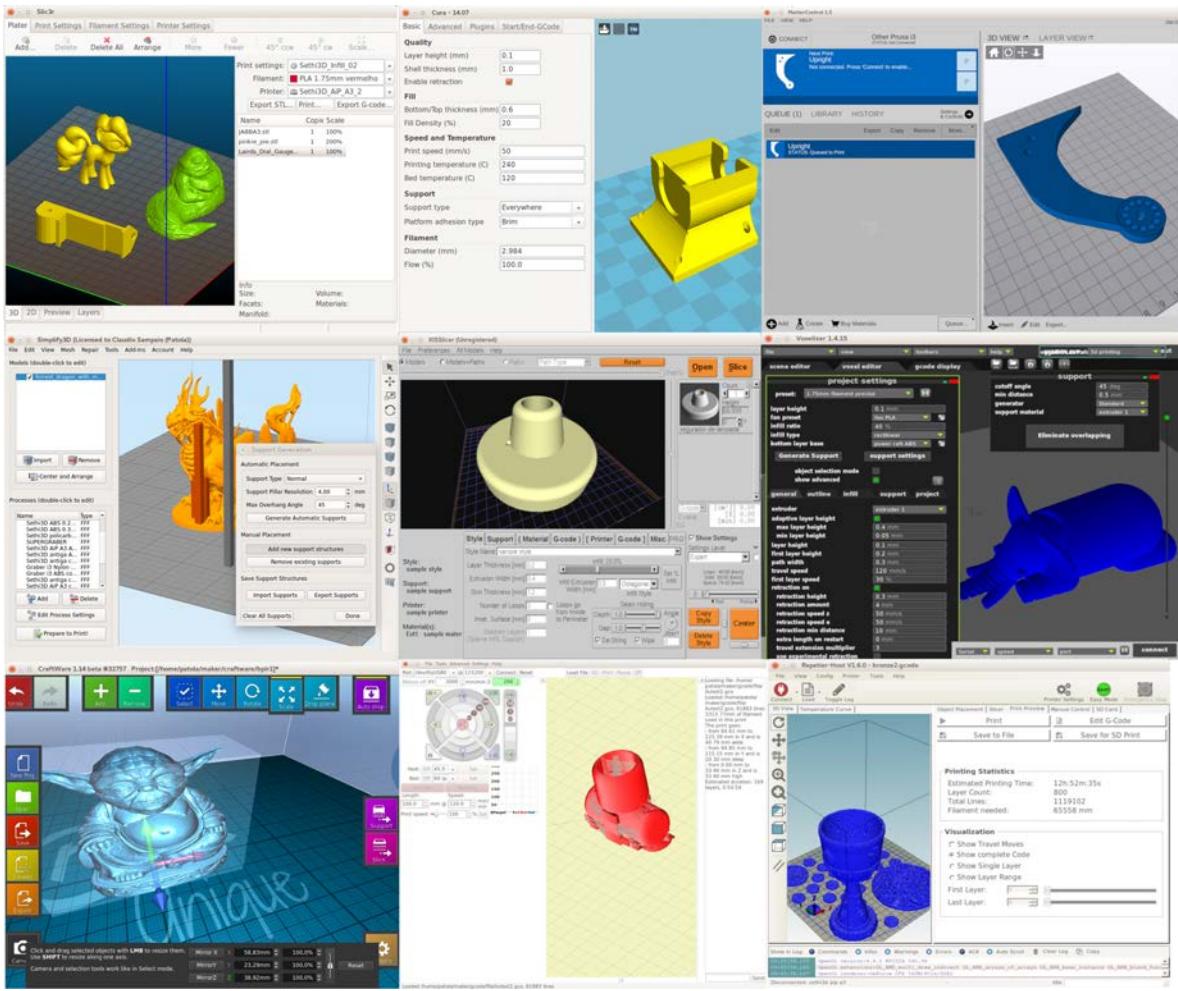












 Configuration Assistant

Welcome to the Slic3r Configuration Assistant

The Slic3r Configuration Assistant is a step-by-step guide to help you set up your printer. It will walk you through the following steps:

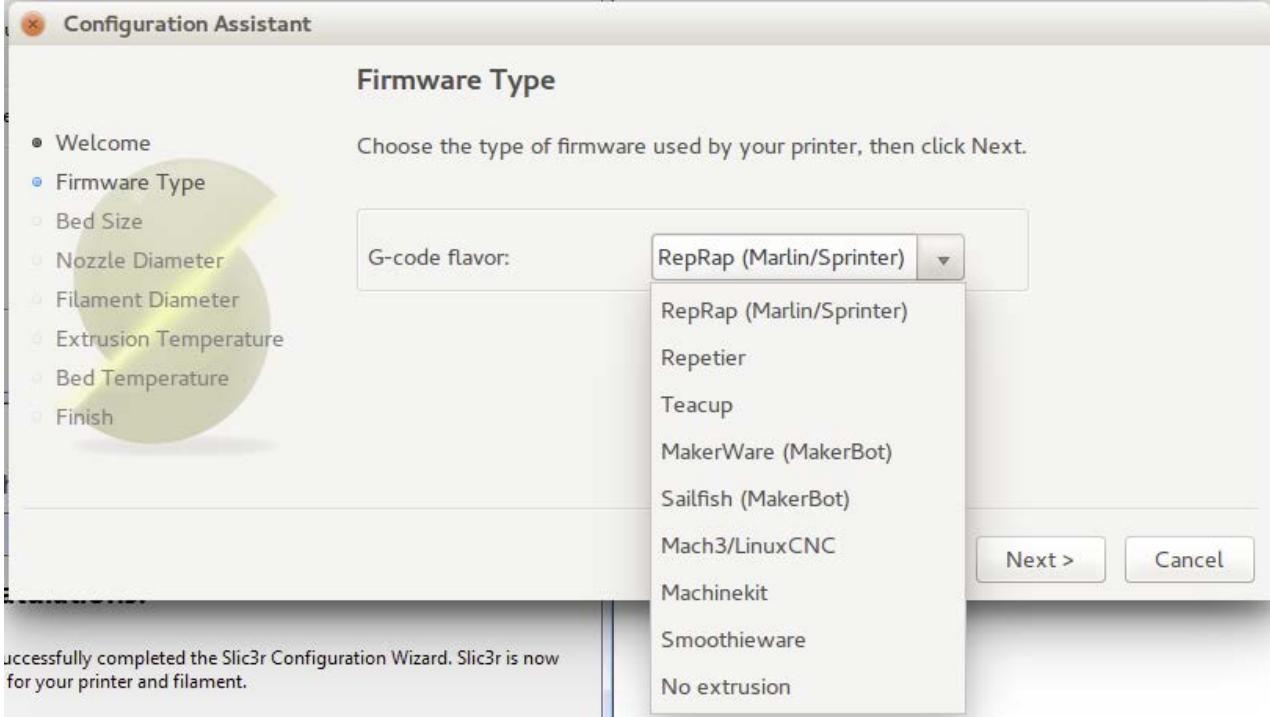
- Welcome (current step)
- Firmware Type
- Bed Size
- Nozzle Diameter
- Filament Diameter
- Extrusion Temperature
- Bed Temperature
- Finish

Hello, welcome to Slic3r! This assistant helps you with the initial configuration; just a few settings and you will be ready to print.

To import an existing configuration instead, cancel this assistant and use the Open Config menu item found in the File menu.

To continue, click Next.

[< Back](#) [Next >](#) [Cancel](#)



 Configuration Assistant

Bed Size

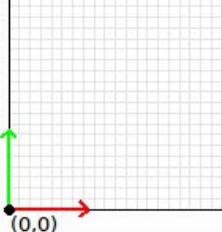
Set the shape of your printer's bed, then click Next.

Shape: **Rectangular**

Settings

Size: x: 200 y: 200

Origin: x: 0 y: 0



< Back Next > Cancel

 Configuration Assistant

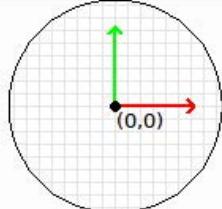
Bed Size

Set the shape of your printer's bed, then click Next.

Shape: **Circular**

Settings

Diameter: 170 mm



< Back Next > Cancel



Configuration Assistant

Nozzle Diameter

- Welcome
- Firmware Type
- Bed Size
- Nozzle Diameter**
- Filament Diameter
- Extrusion Temperature
- Bed Temperature
- Finish

Enter the diameter of your printer's hot end nozzle, then click Next.

Nozzle diameter: mm

< Back Next > Cancel



Configuration Assistant

Filament Diameter

- Welcome
- Firmware Type
- Bed Size
- Nozzle Diameter
- Filament Diameter**
- Extrusion Temperature
- Bed Temperature
- Finish

Enter the diameter of your filament, then click Next.

Good precision is required, so use a caliper and do multiple measurements along the filament, then compute the average.

Diameter: mm

< Back **Next >** Cancel



 Configuration Assistant

Extrusion Temperature

- Welcome
- Firmware Type
- Bed Size
- Nozzle Diameter
- Filament Diameter
- Extrusion Temperature
- Bed Temperature
- Finish

Enter the temperature needed for extruding your filament, then click Next.

A rule of thumb is 160 to 230 °C for PLA, and 215 to 250 °C for ABS.

Temperature: 

[< Back](#) [Next >](#) [Cancel](#)

 Configuration Assistant

Bed Temperature

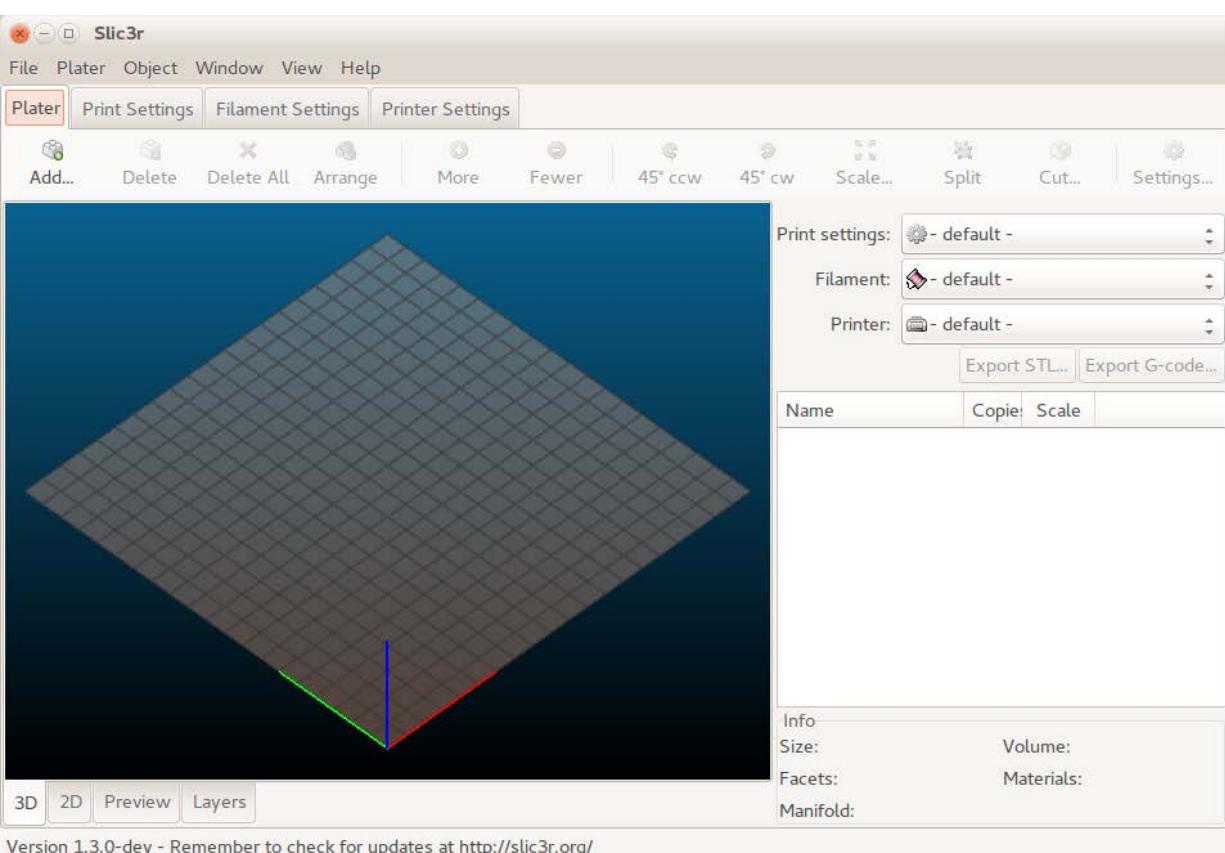
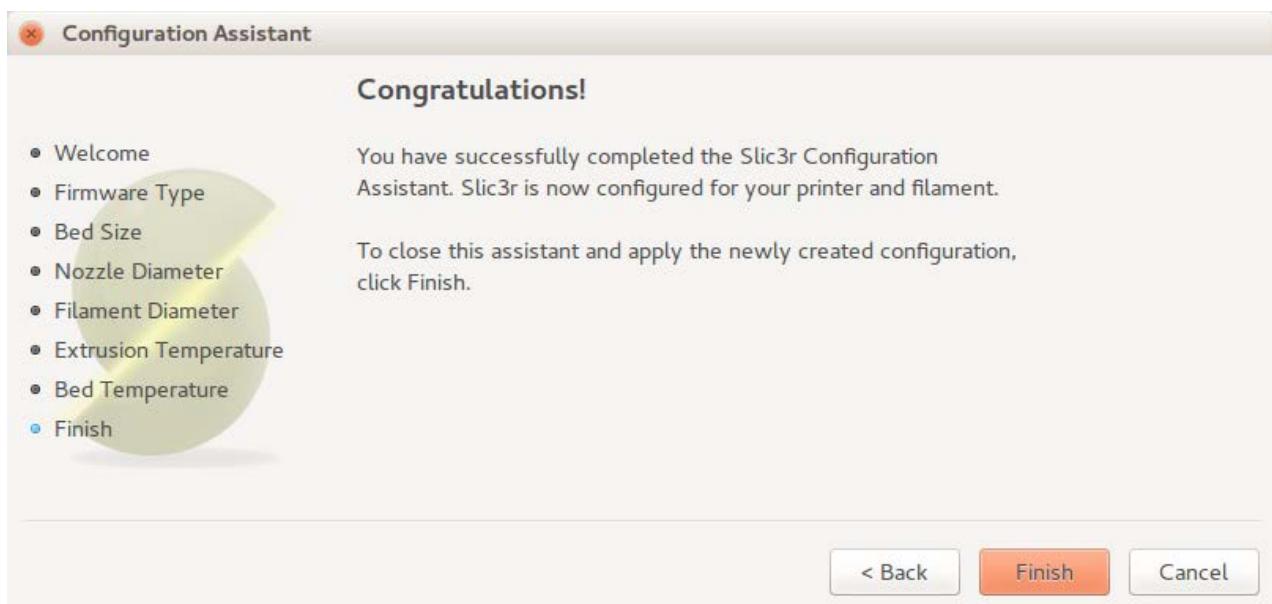
- Welcome
- Firmware Type
- Bed Size
- Nozzle Diameter
- Filament Diameter
- Extrusion Temperature
- Bed Temperature
- Finish

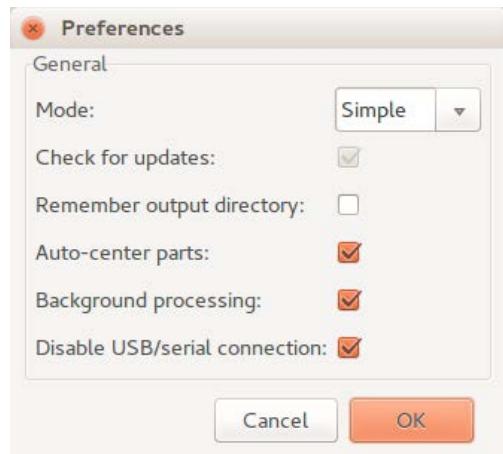
Enter the bed temperature needed for getting your filament to stick to your heated bed, then click Next.

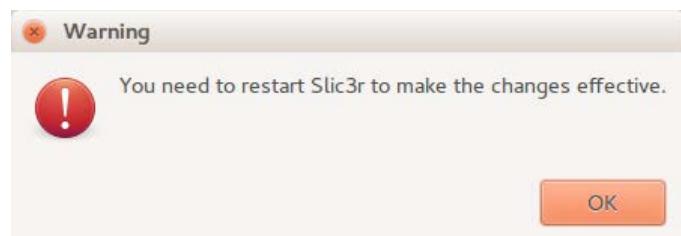
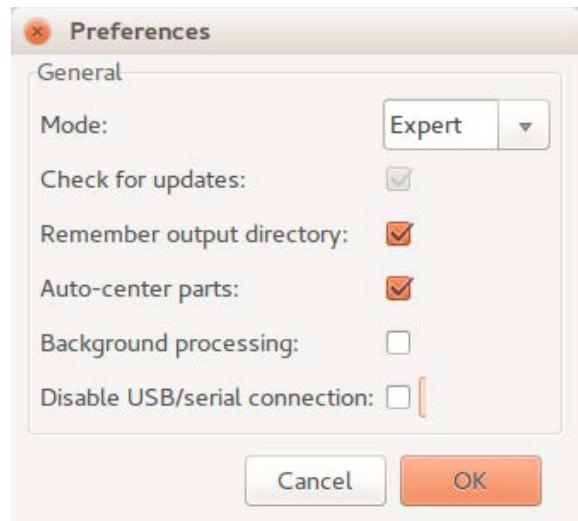
A rule of thumb is 60 °C for PLA and 110 °C for ABS. Leave zero if you have no heated bed.

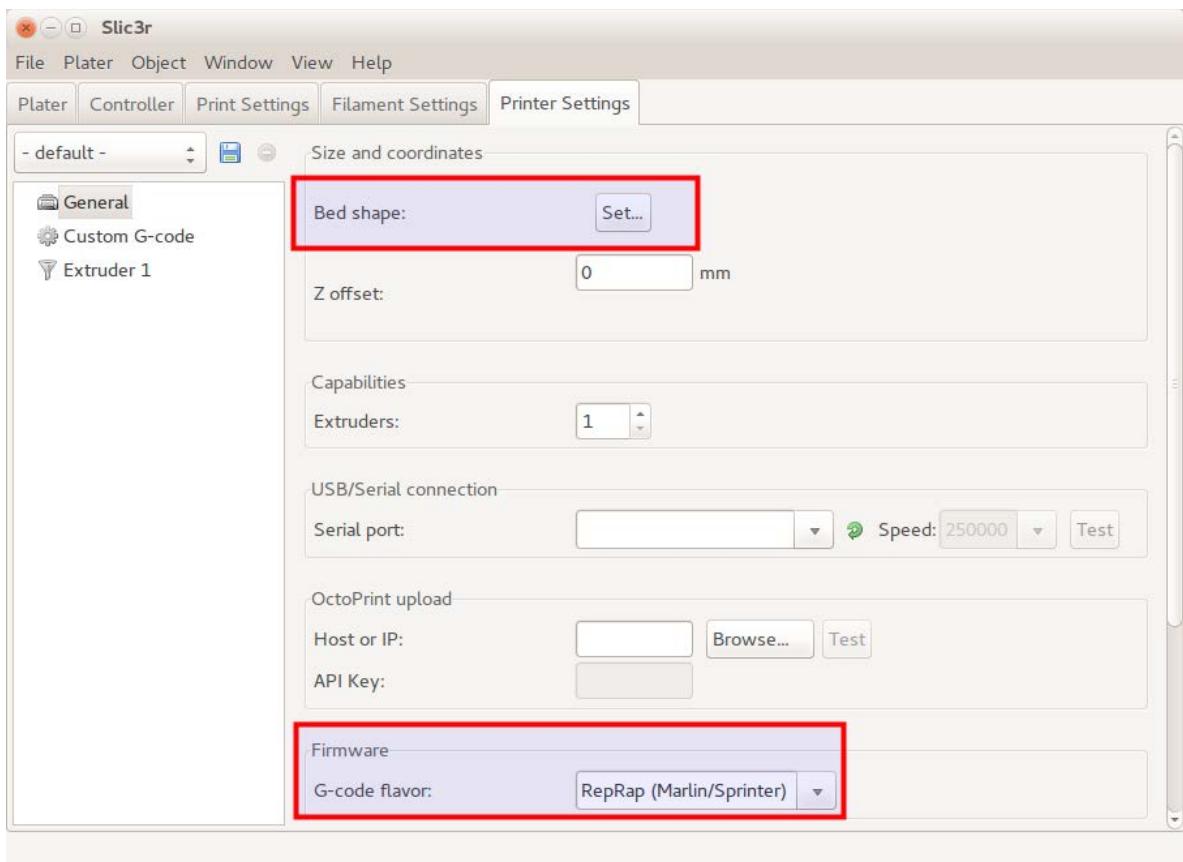
Bed temperature: 

[< Back](#) [Next >](#) [Cancel](#)



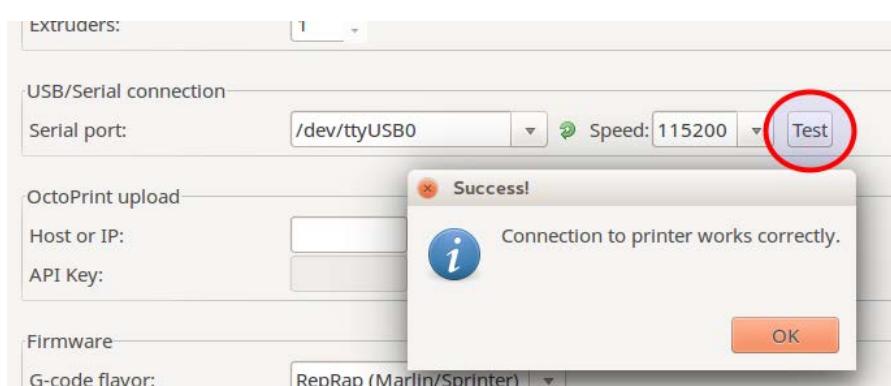




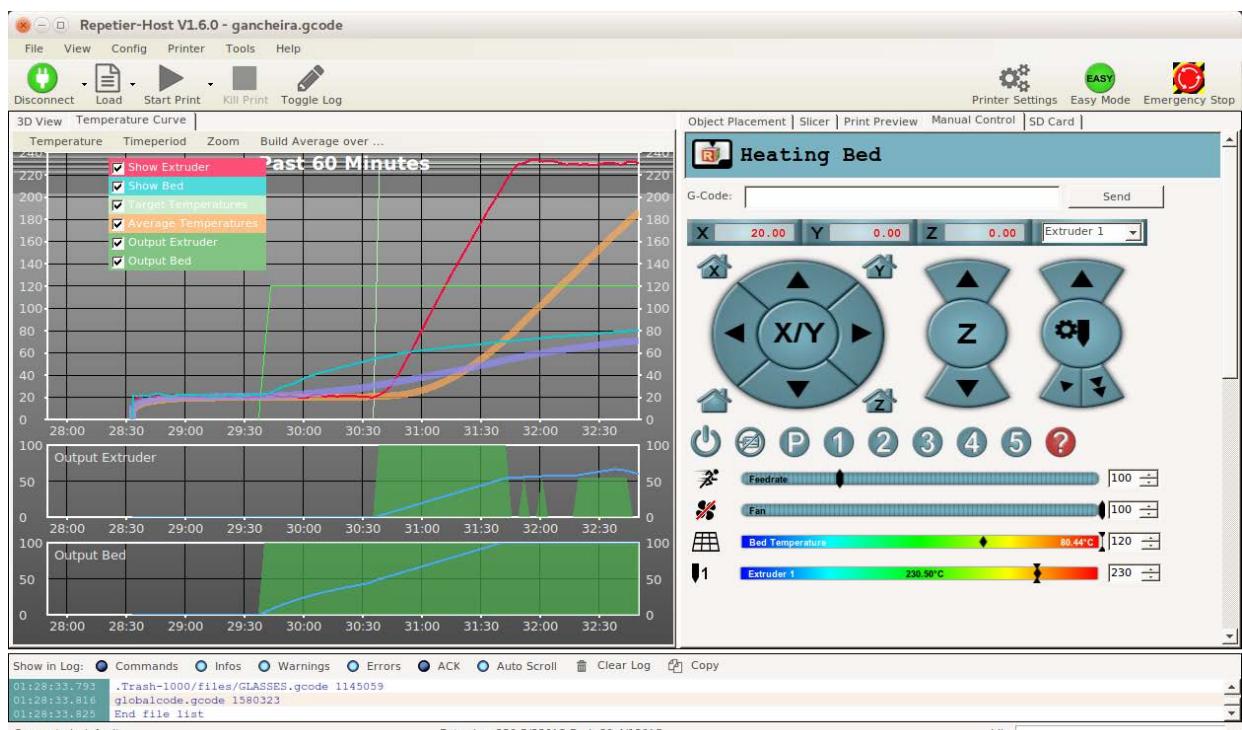
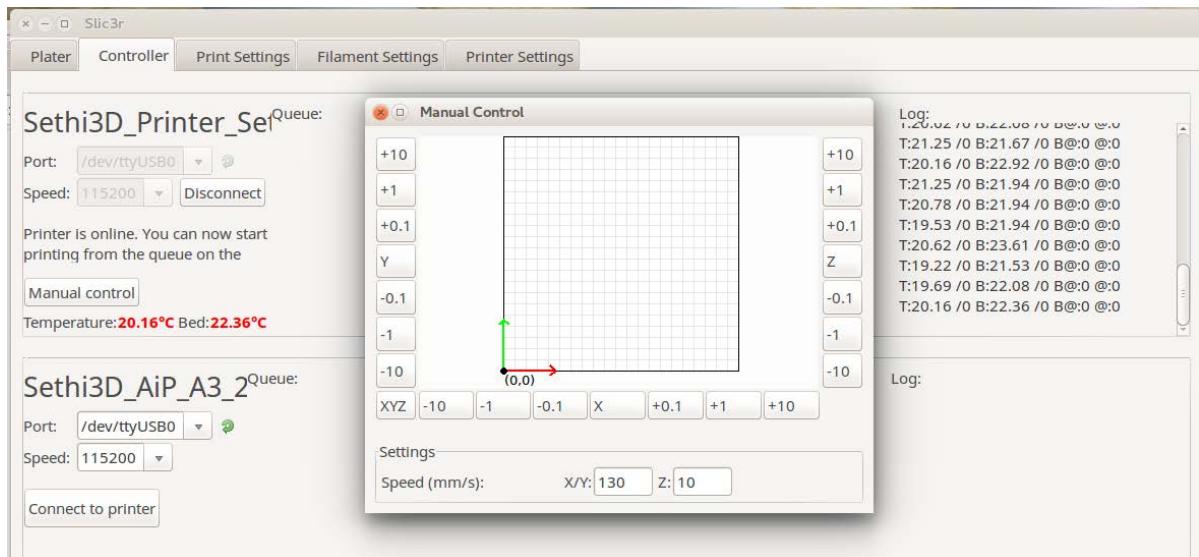


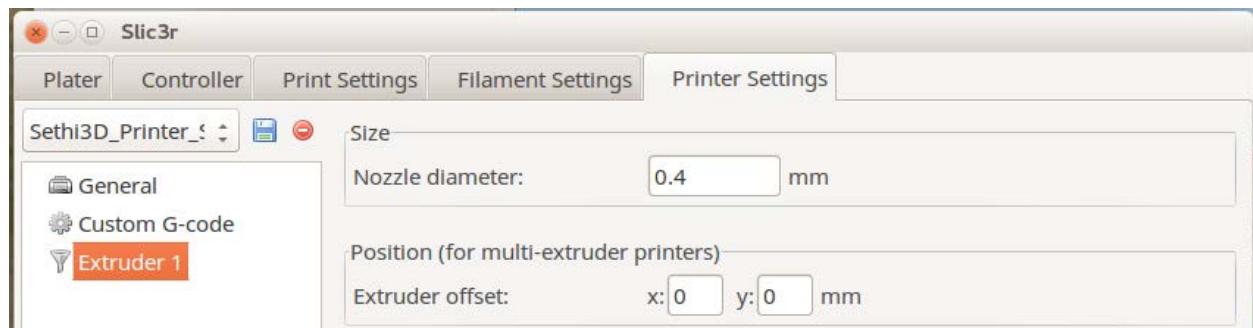


/dev/ttyUSB<número> /dev/ttyACM<número> COM<número>
/dev/tty.usbserial* /dev/cu.usbserial*



COM<número>





Slic3r

Plater Controller Print Settings Filament Settings Printer Settings

Sethi3D_AIP_A3 ()

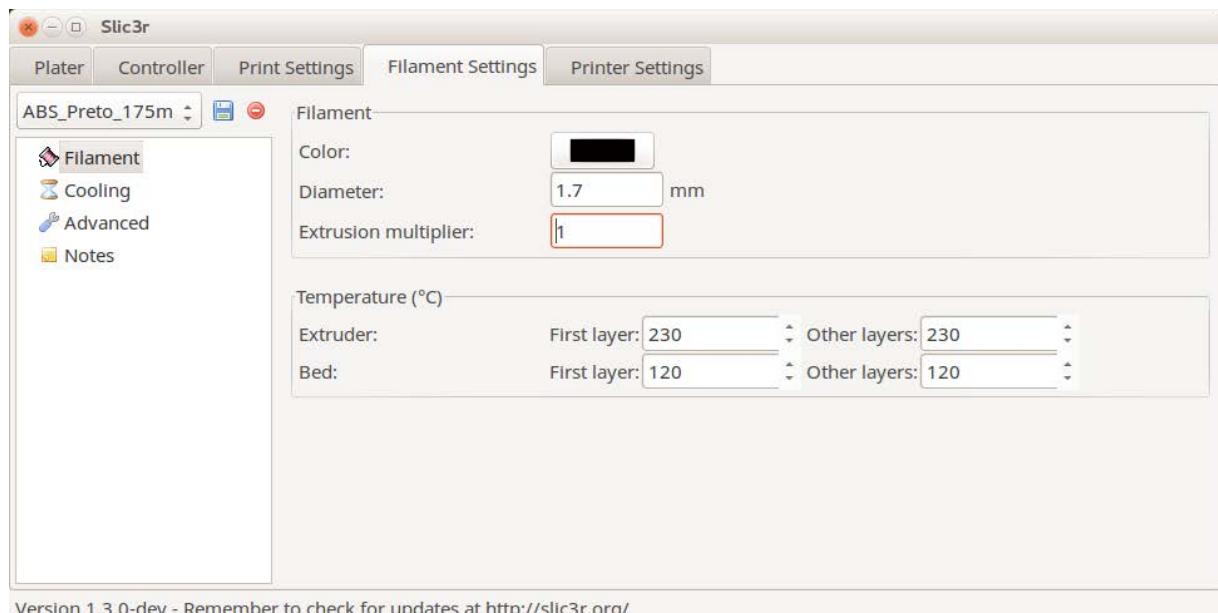
Start G-code

```
G28 ; home all X Y e Z  
G21 ;metric values  
G90 ;absolute positioning  
G1 Z5 F210 ; lift 5 mm for Bed Auto-Leveling  
G32 S1 ; bed auto-leveling (BAL) type 1.  
M107 ;start with the fan off  
G1 Z2 F210
```

End G-code

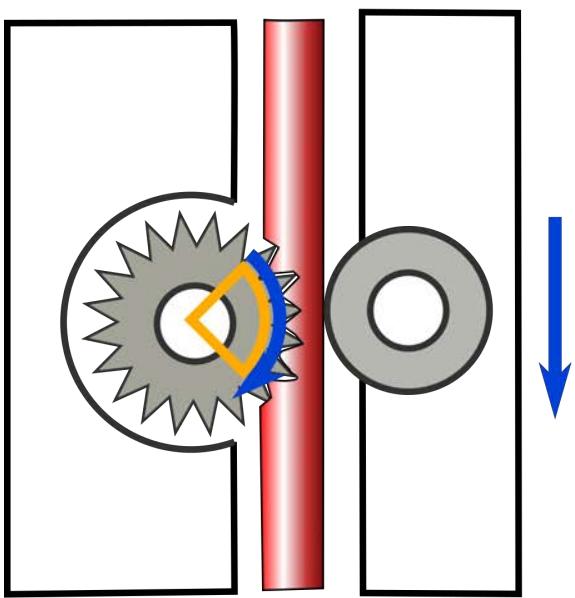
```
M104 S0 ; turn off temperature  
G28 X0 ; home X axis  
M84 ; disable motors  
M140 S0 ; turn off heated bed  
M120 S200 P10 ; end print sound
```

The screenshot shows the Slic3r software interface. At the top, there are tabs for Plater, Controller, Print Settings, Filament Settings, and Printer Settings. The Printer Settings tab is selected. Below the tabs, there's a dropdown menu showing "Sethi3D_AIP_A3 ()". On the left, there's a sidebar with icons for General, Custom G-code (which is selected), and Extruder 1. The main area has two large text boxes. The top box is titled "Start G-code" and contains G-code for homing axes, setting metric values, absolute positioning, lifting the bed for auto-leveling, starting the fan off, and moving the Z-axis down. The bottom box is titled "End G-code" and contains commands to turn off temperature, home the X axis, disable motors, turn off the heated bed, and end the print sound.

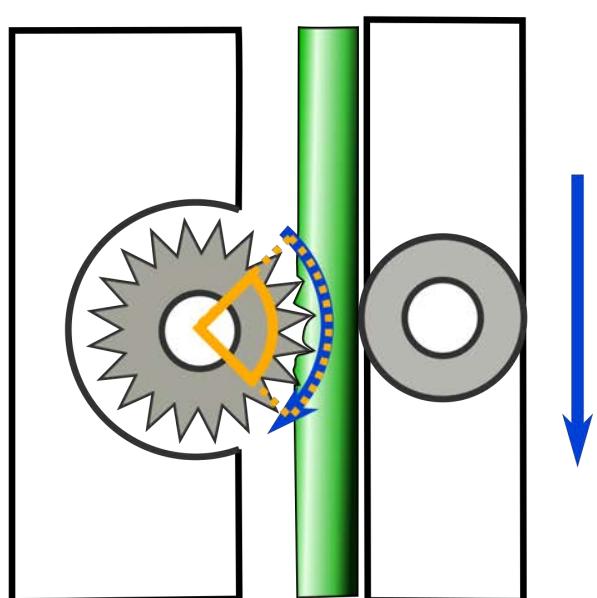


Version 1.3.0-dev - Remember to check for updates at <http://slic3r.org/>

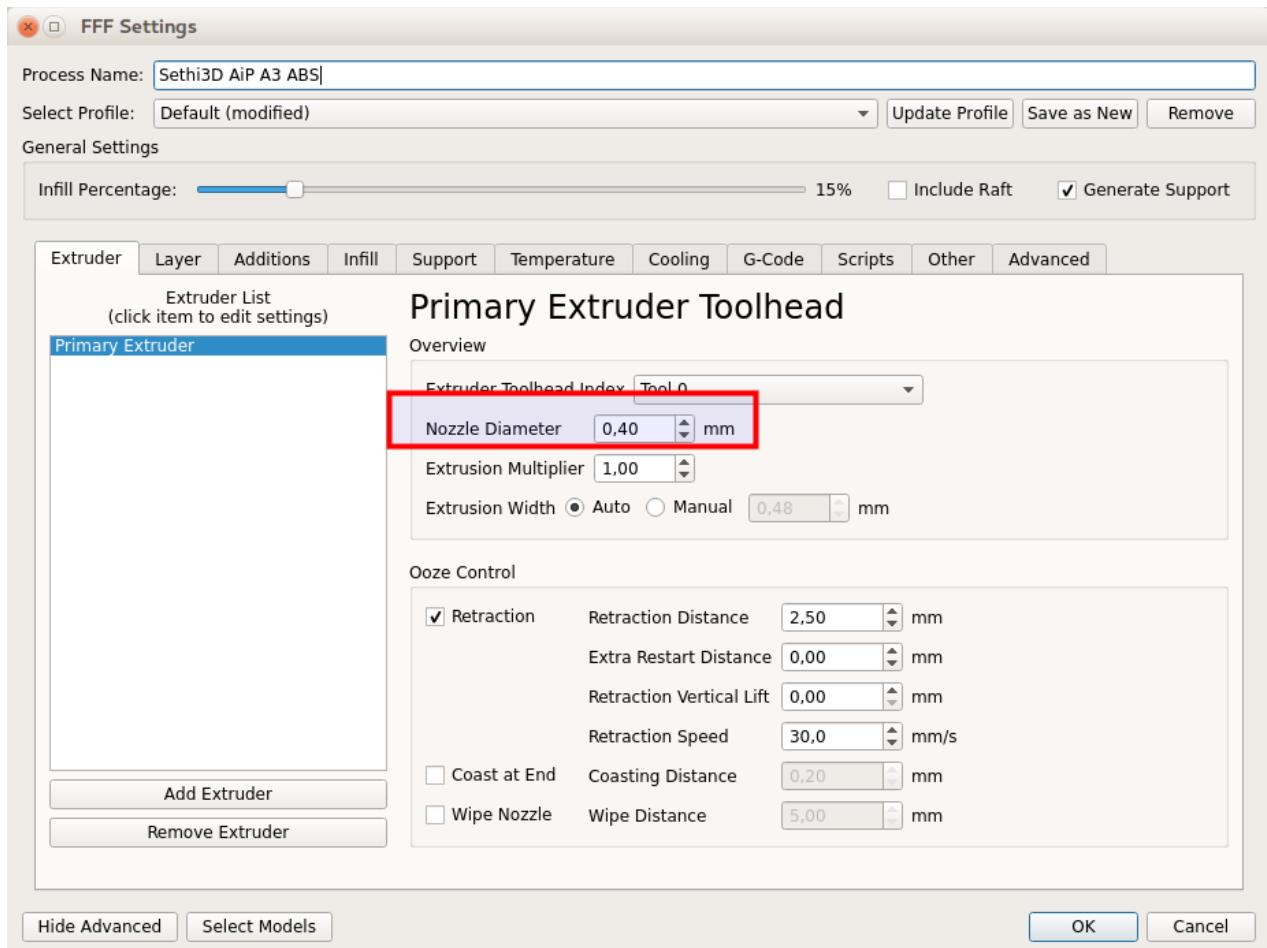
ABS

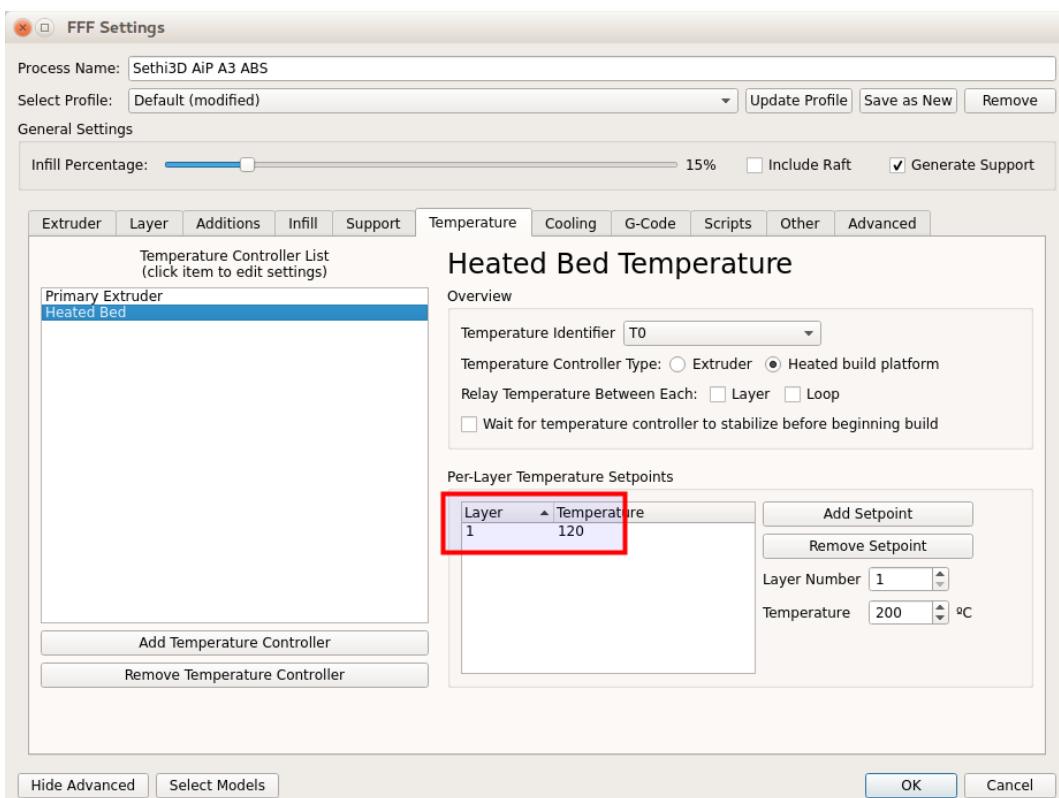
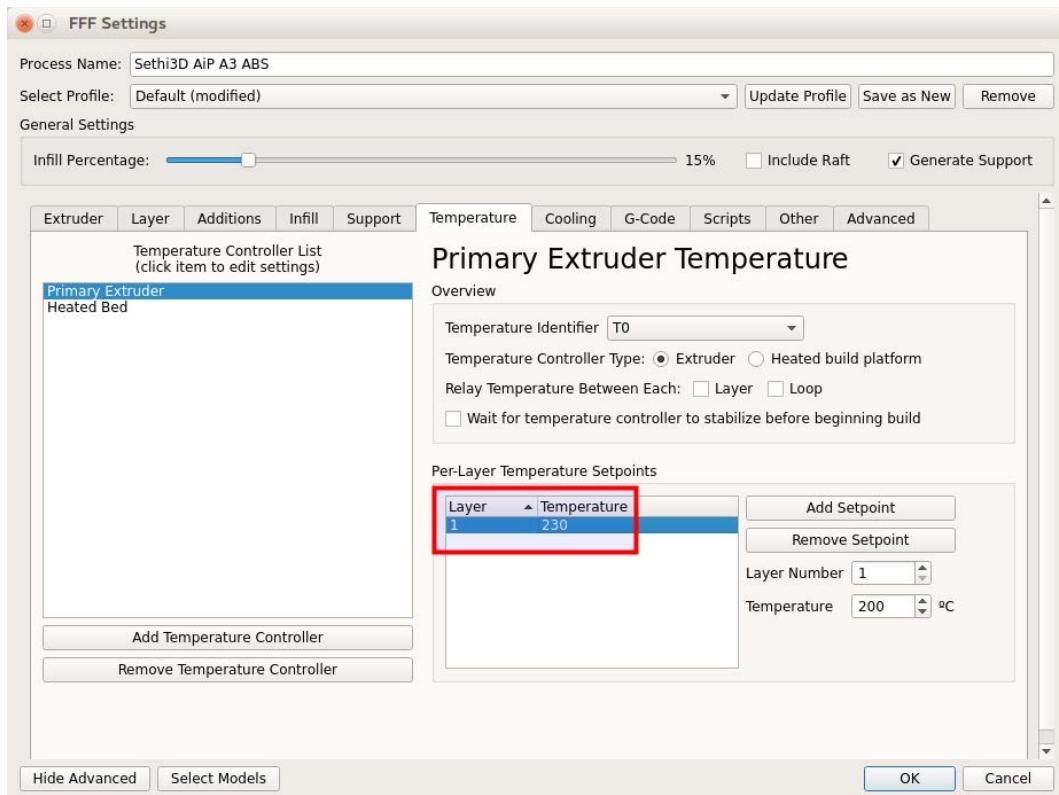


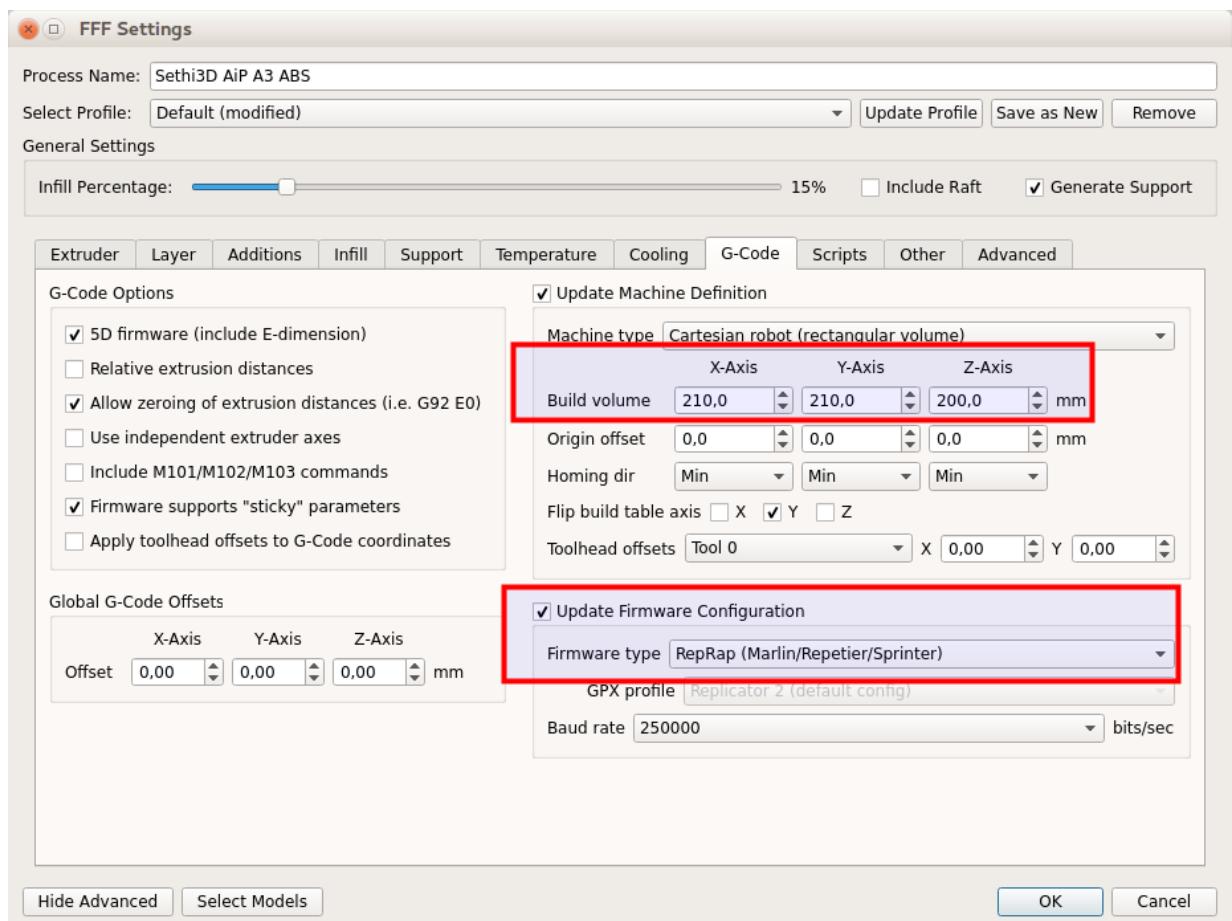
PLA

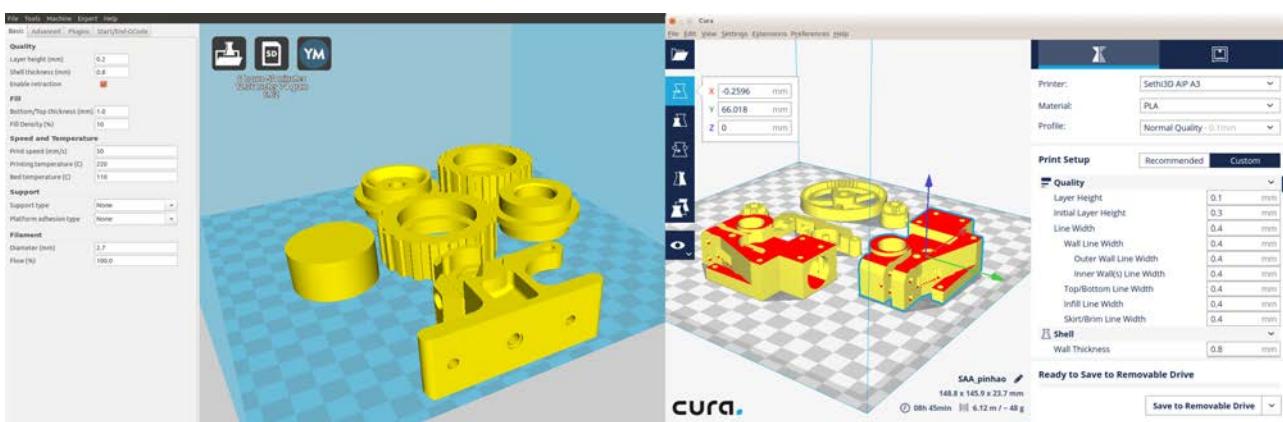
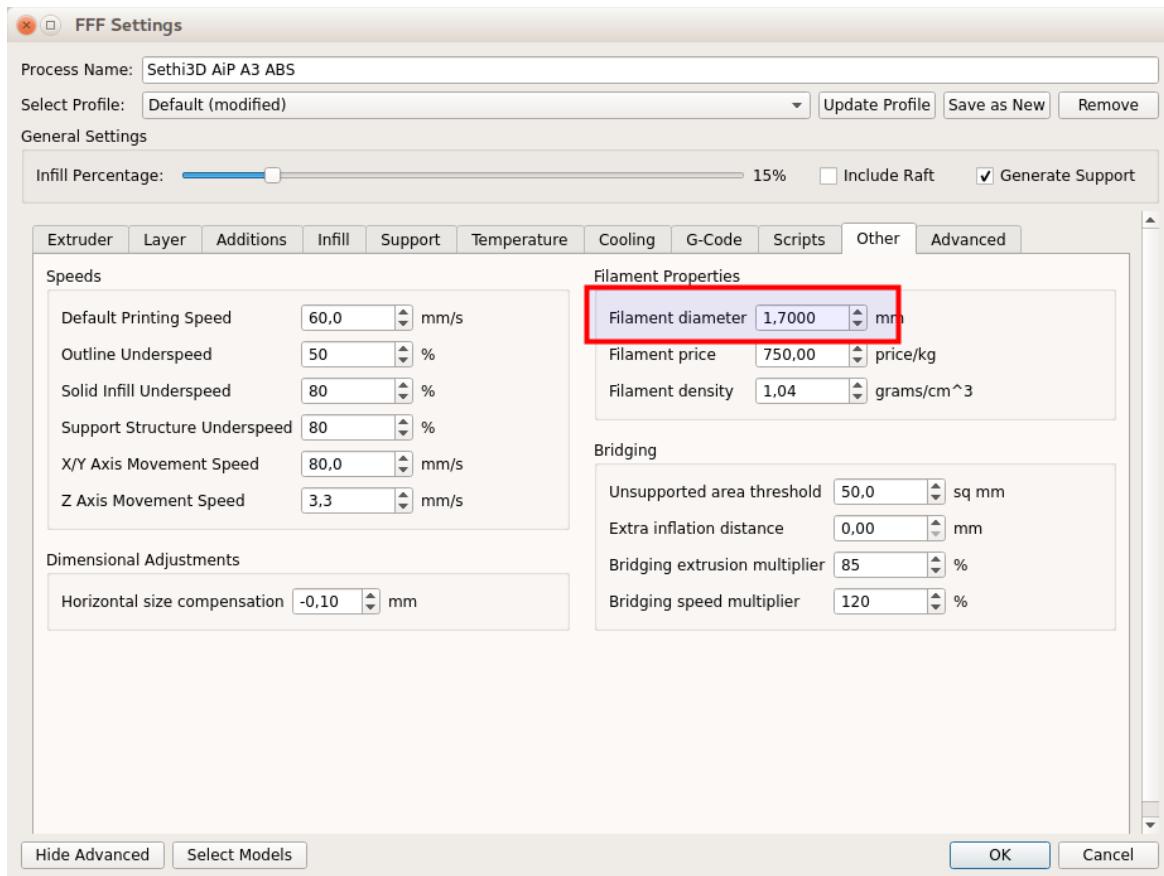


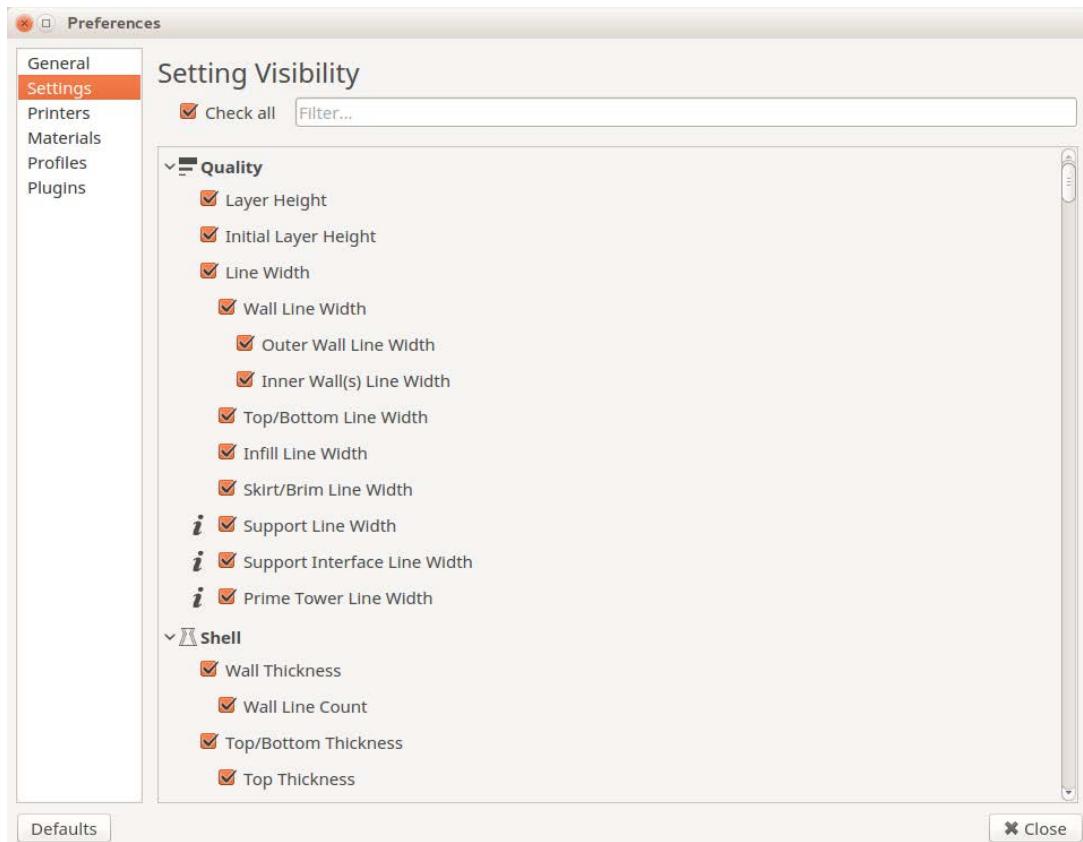












Preferences

Printers

Activate Add Remove Rename

Koszel Mini
Sethi3D AiP A1 3mm
Sethi3D AiP A3
Ultimaker Original Dual Extrusion

Machine Settings Upgrade Firmware Connect OctoPrint

Printer type: Custom FDM printer

Machine Settings

Please enter the correct settings for your printer below:

Printer Settings

X (Width) 210 mm
Y (Depth) 210 mm
Z (Height) 200 mm

Heated Bed
 Machine Center Is Zero

GCode Flavor RepRap (M...)

Printhead Settings

X min 0 mm
Y min 0 mm
X max 0 mm
Y max 0 mm

Gantry height 9999999999 mm

Nozzle size 0.4 mm

Start Gcode

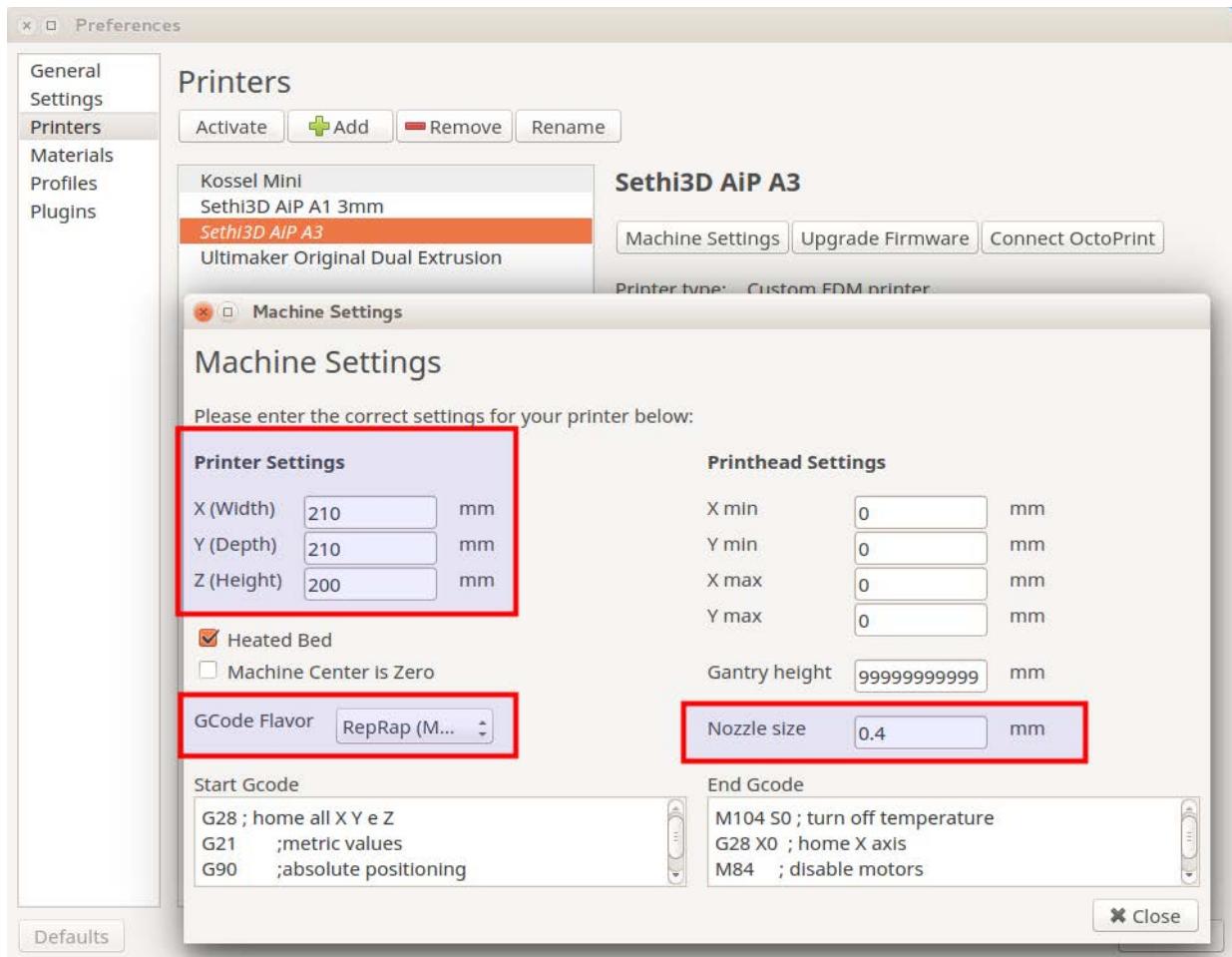
G28 ; home all X Y e Z
G21 ;metric values
G90 ;absolute positioning

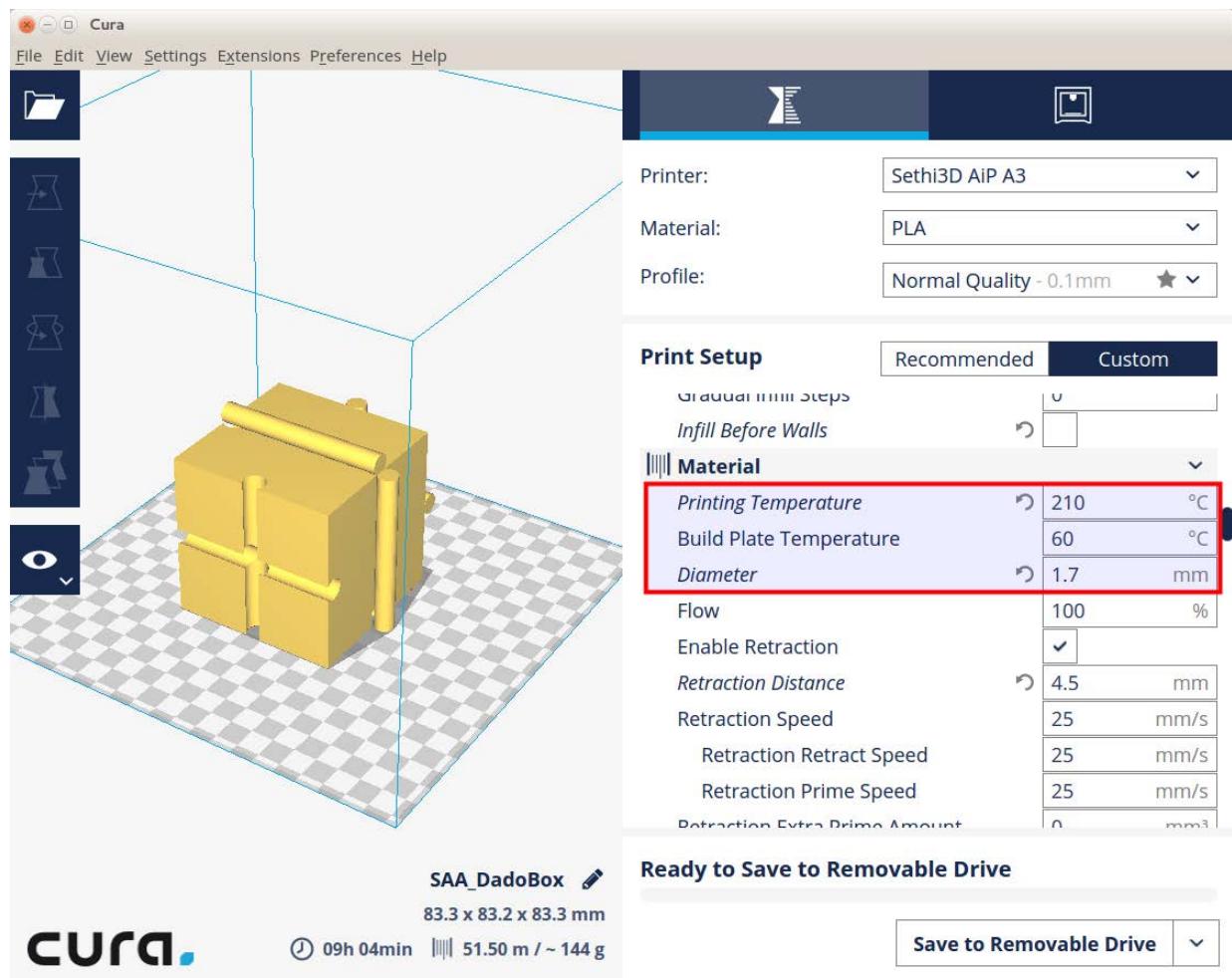
End Gcode

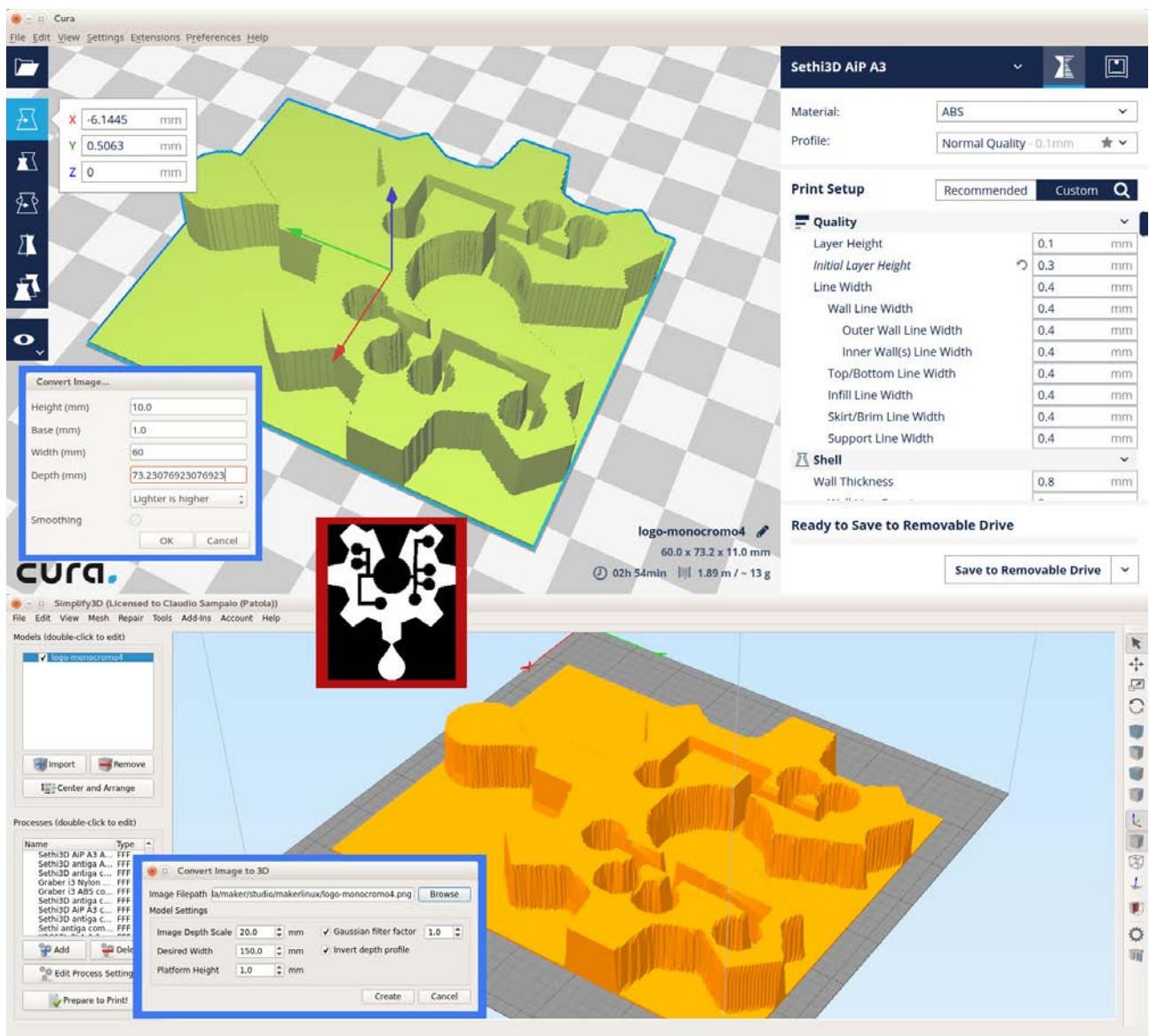
M104 S0 ; turn off temperature
G28 X0 ; home X axis
M84 ; disable motors

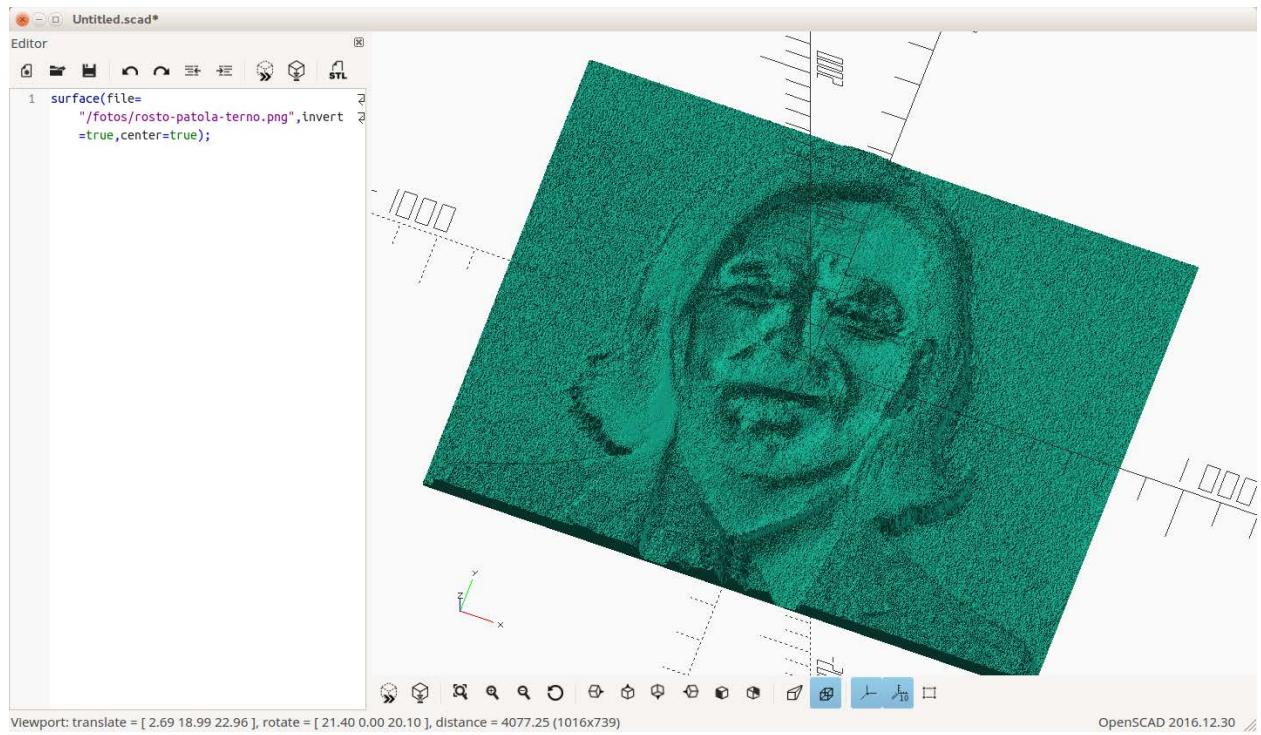
Close

Defaults



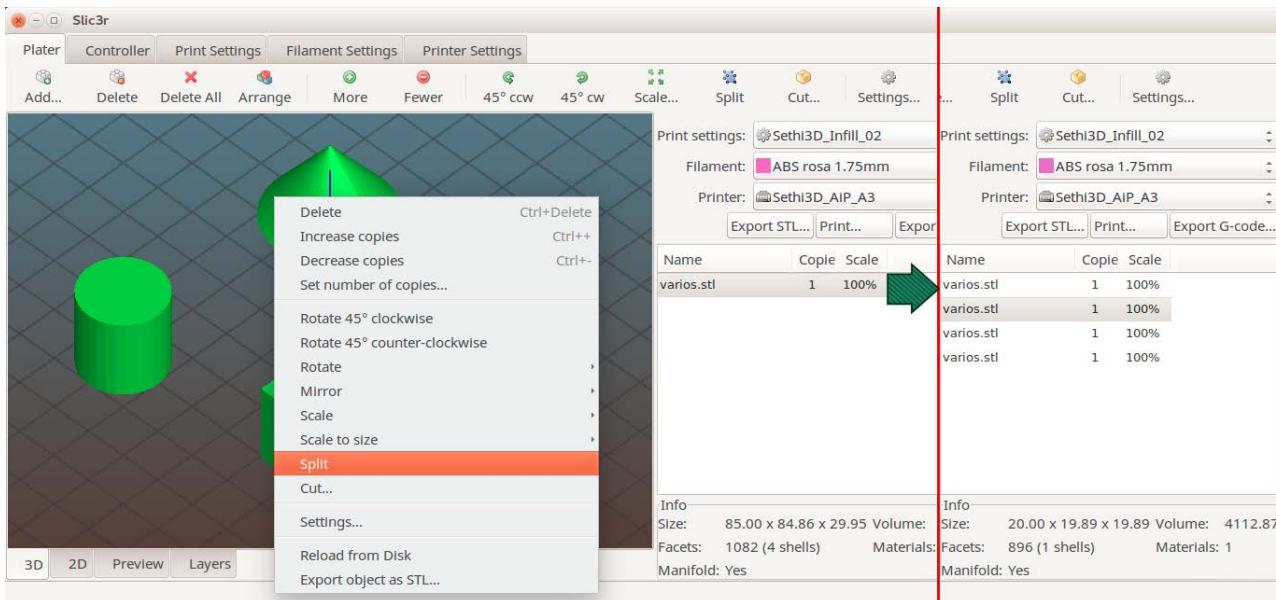




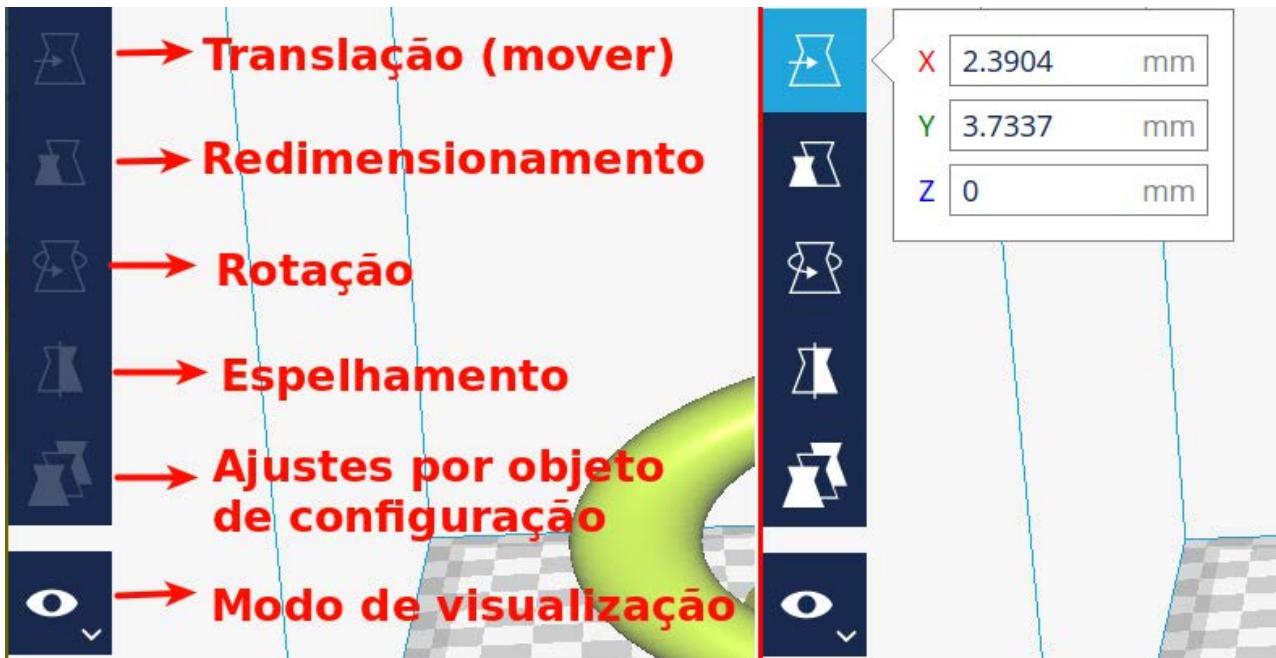


Viewport: translate = [2.69 18.99 22.96], rotate = [21.40 0.00 20.10], distance = 4077.25 (1016x739)

OpenSCAD 2016.12.30



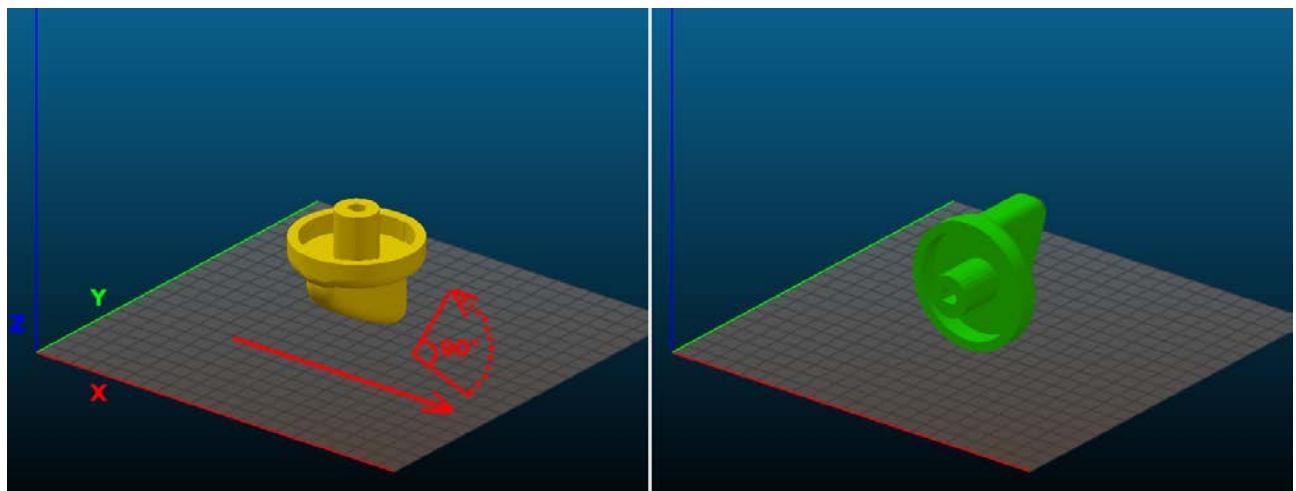
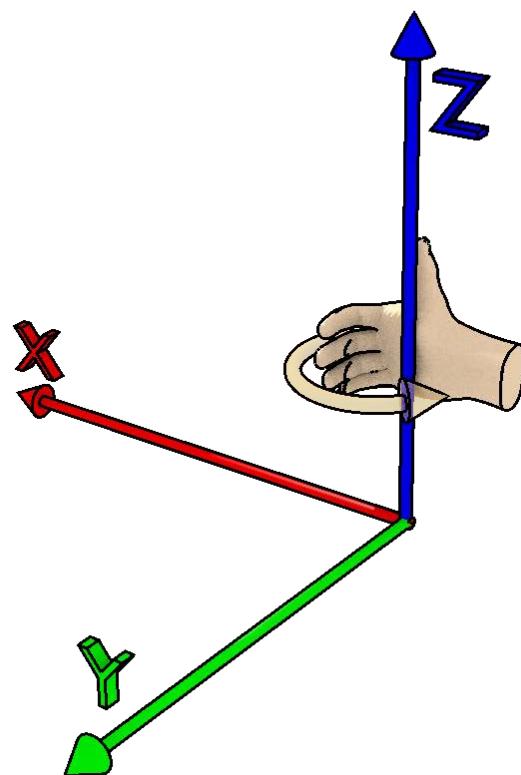
varios.stl



Regra da mão direita:

com a mão direita, aponte o dedão na direção do eixo considerado, na figura o eixo Z.

Os dedos restantes, numa posição relaxada, apontarão para o sentido de rotação, conforme mostra a seta circular.

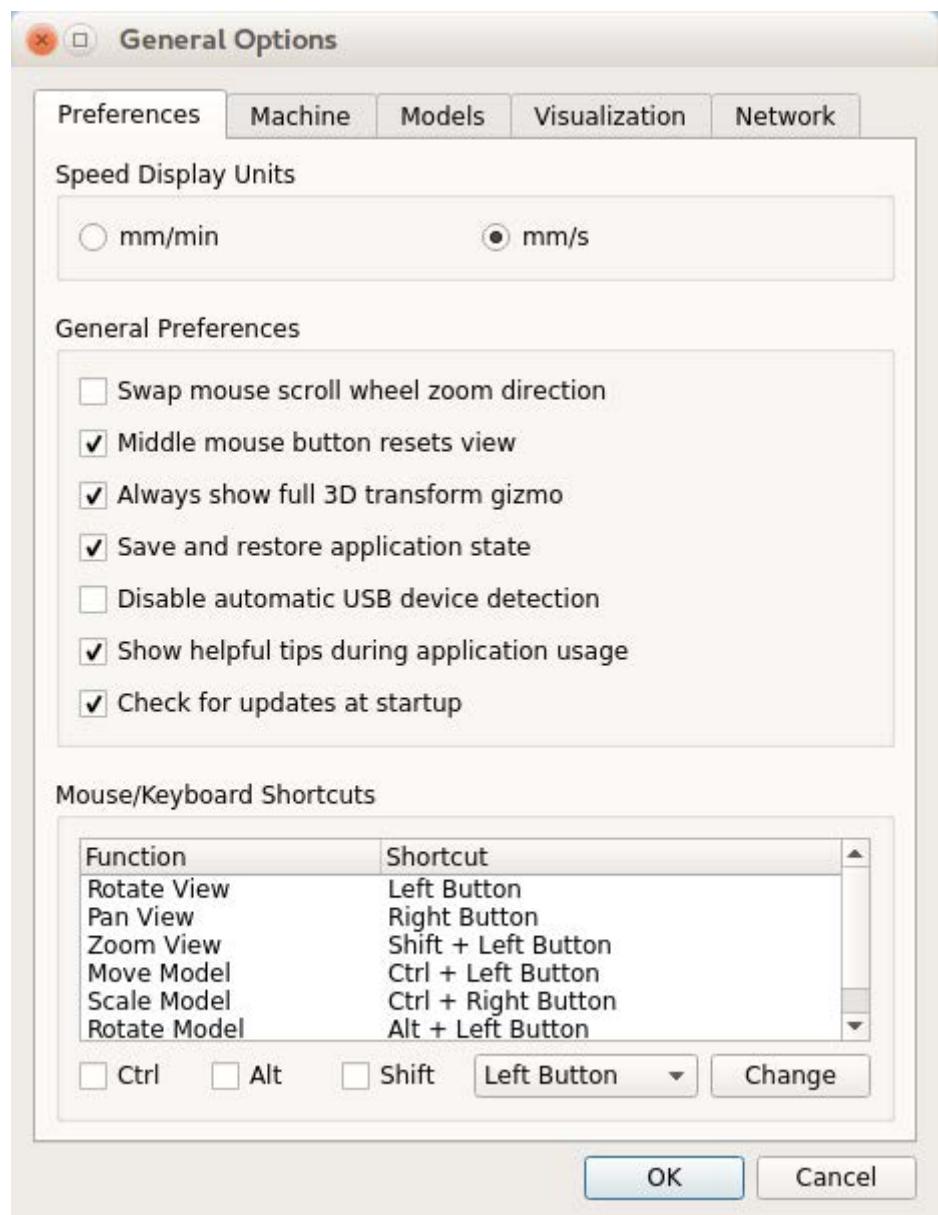


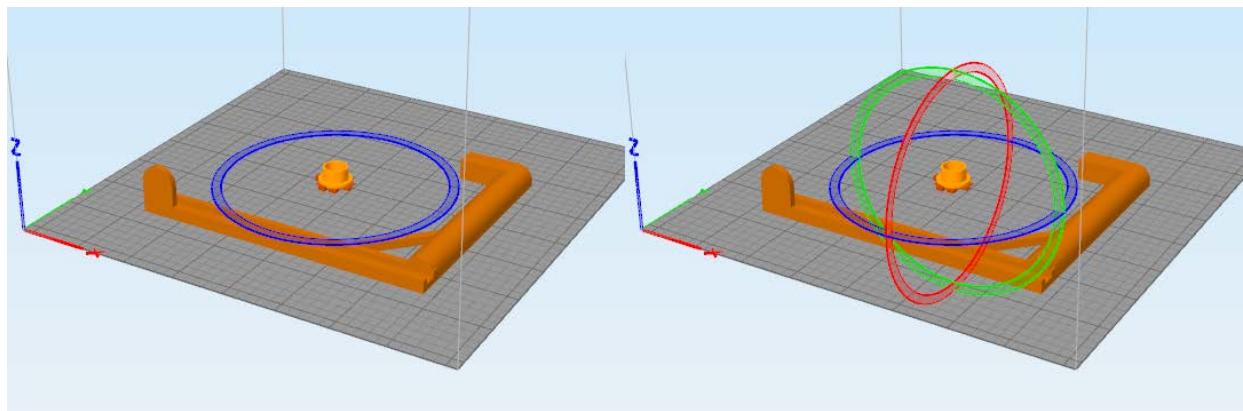
Temperature Cooling G-Code Scripts Other Advanced

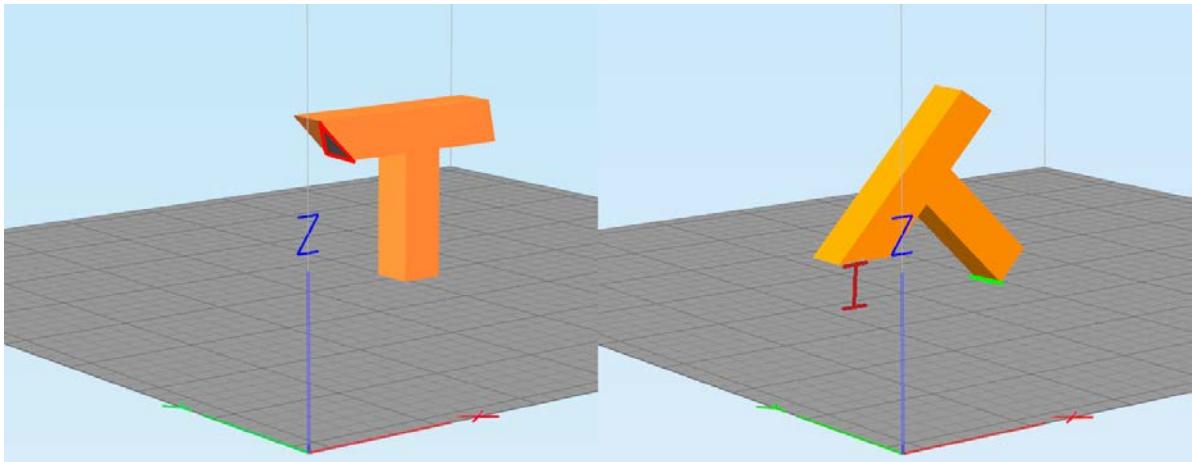
Update Machine Definition

Machine type: Cartesian robot (rectangular volume)

	X-Axis	Y-Axis	Z-Axis
Build volume	210,0	210,0	200,0
Origin offset	0,0	0,0	0,0
Homing dir	Min	Min	Min
Flip build table axis	<input type="checkbox"/> X	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> Z
Toolhead offsets	Tool 0	X 0,00	Y 0,00







Preferences

General

Interface
Language: English Currency: R\$
You will need to restart the application for language changes to have effect.

Slice automatically

Viewport behavior

Display overhang
 Center camera when item is selected
 Ensure models are kept apart
 Automatically drop models to the build plate
 Display five top layers in layer view compatibility mode
 Only display top layer(s) in layer view compatibility mode
 Force layer view compatibility mode (restart required)

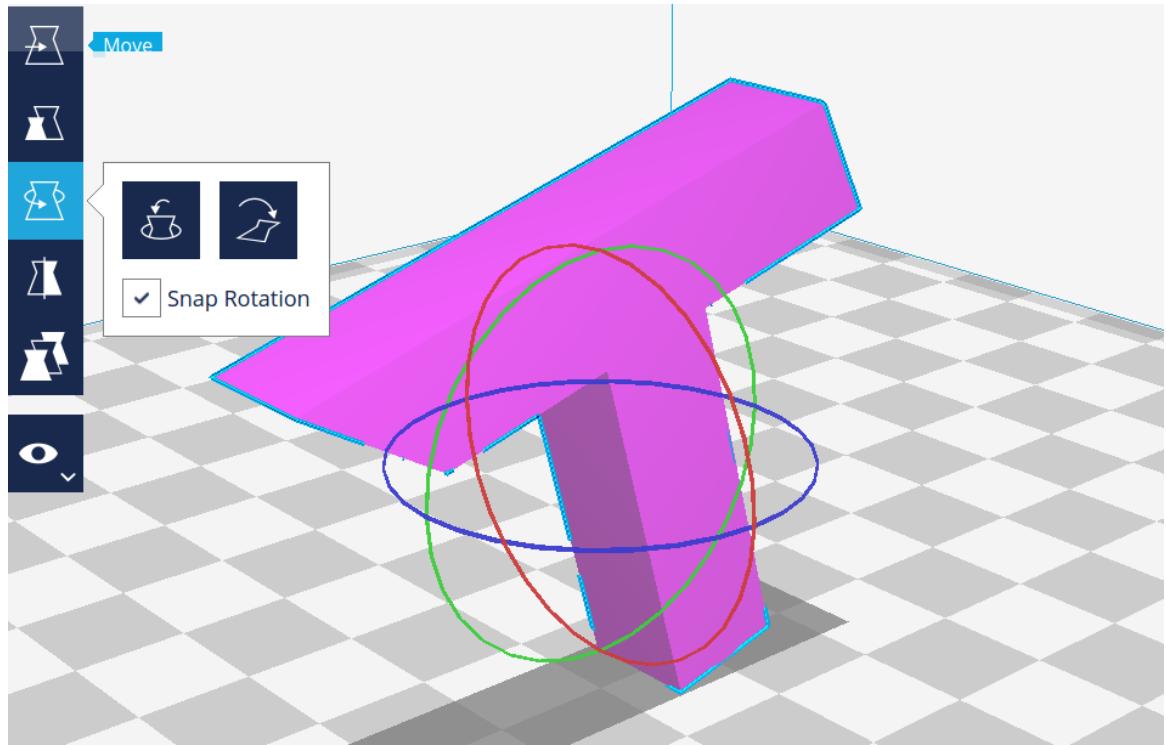
Opening and saving files

Scale large models
 Scale extremely small models
 Add machine prefix to job name
 Show summary dialog when saving project

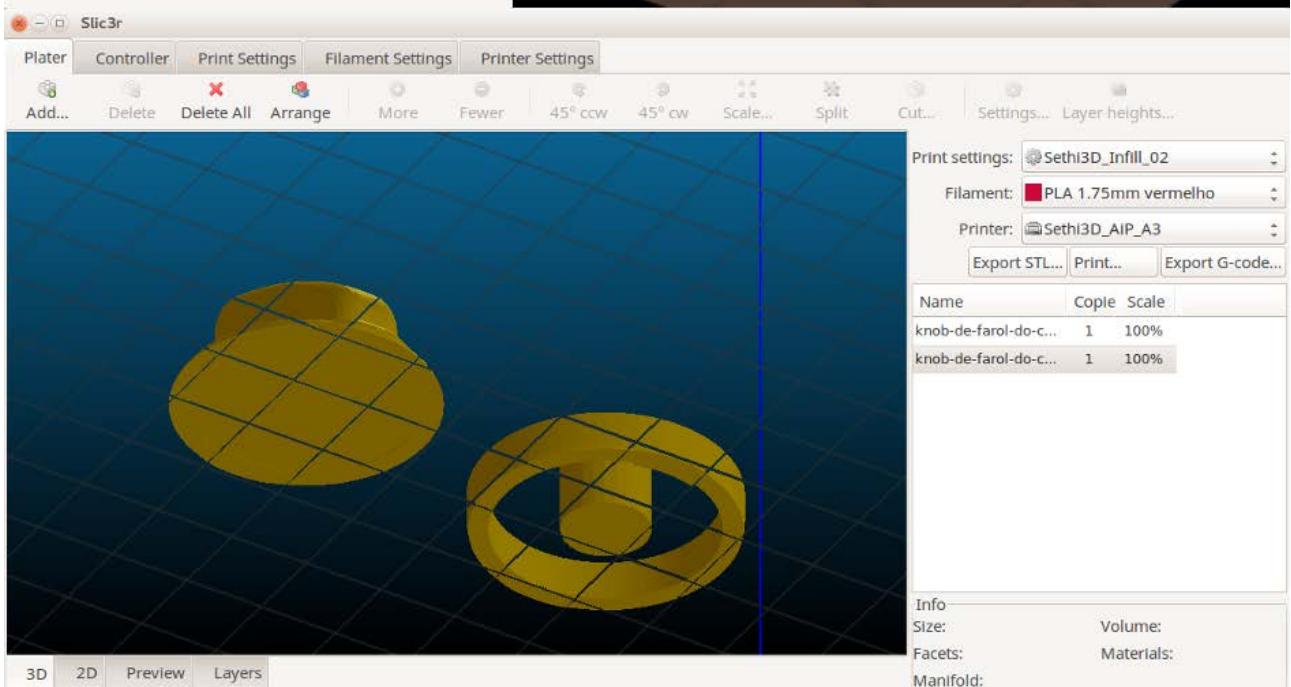
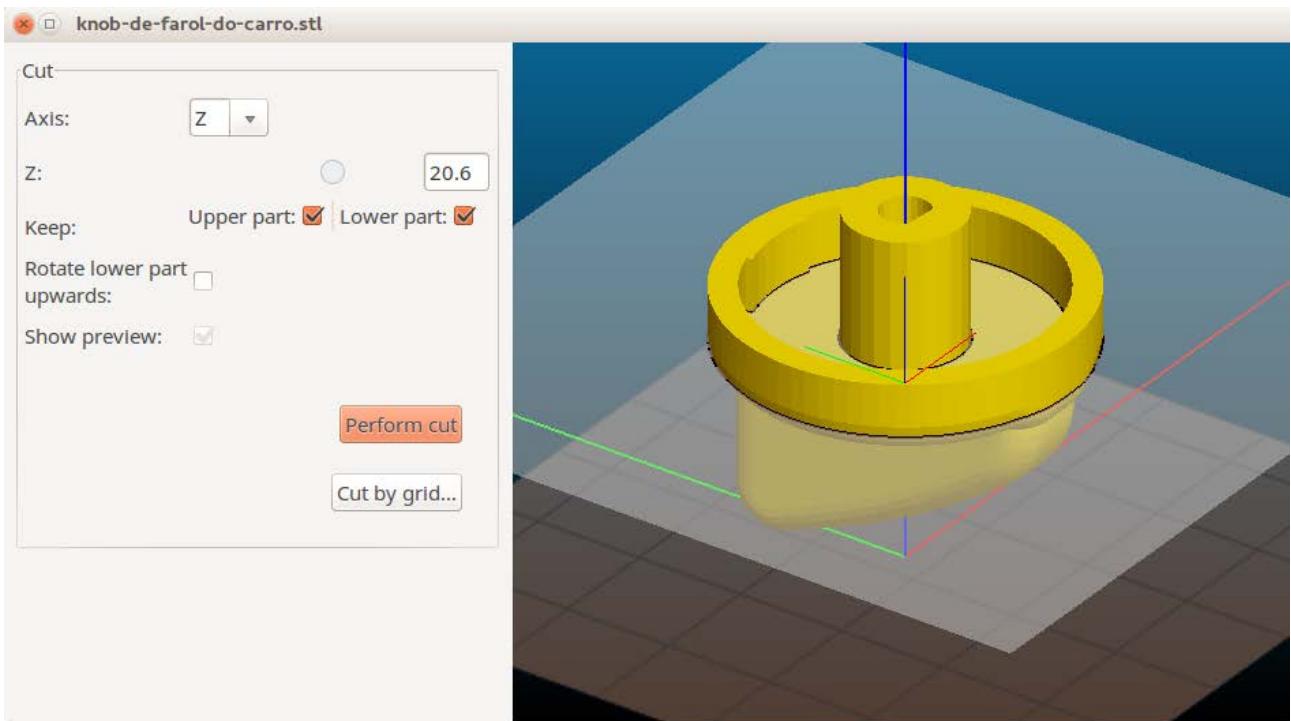
Override Profile
Always ask me this

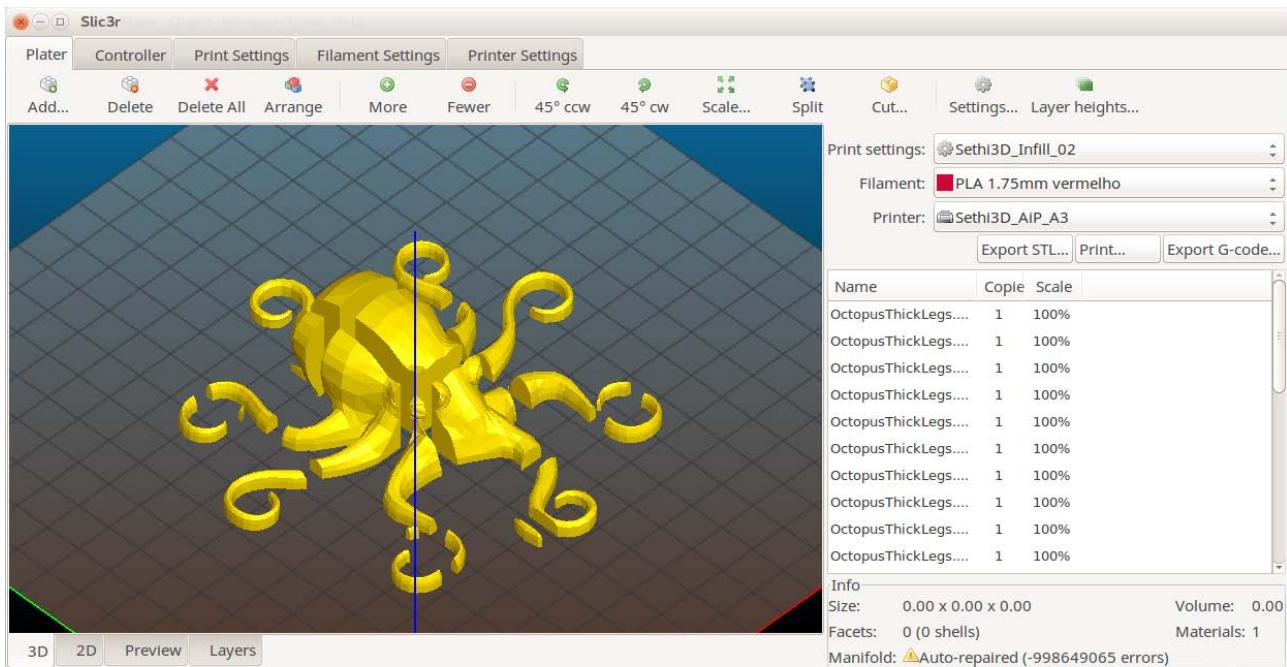
Privacy
 Send (anonymous) print information

Defaults **Close**

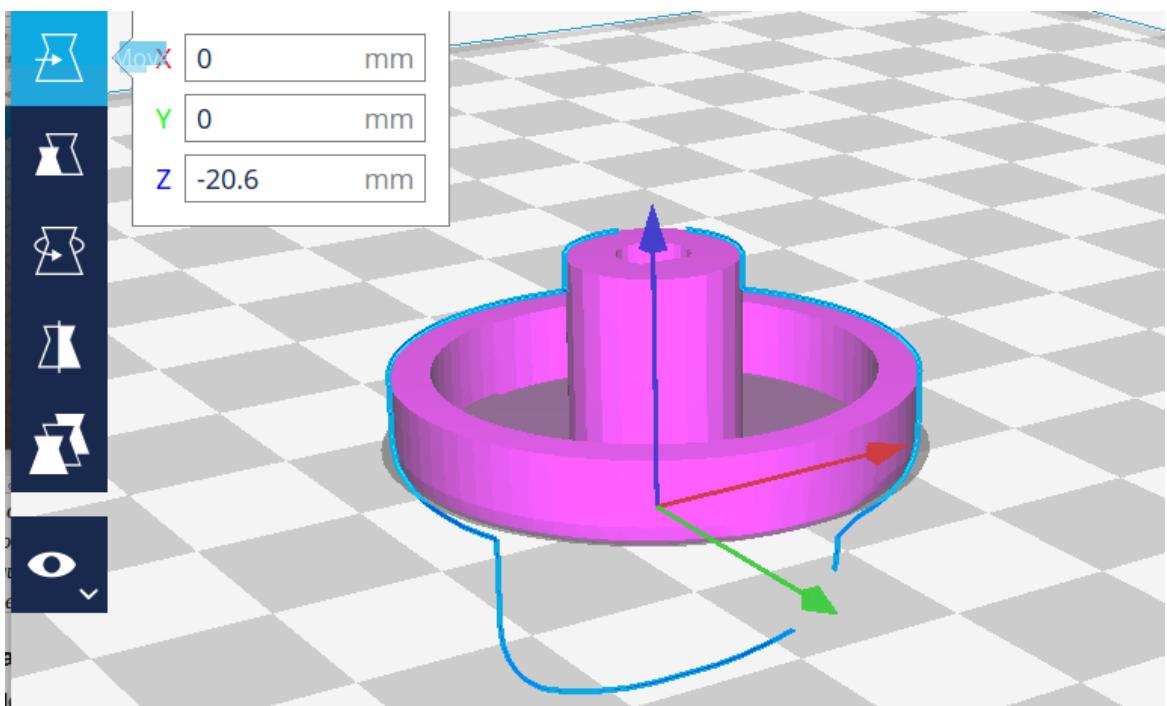
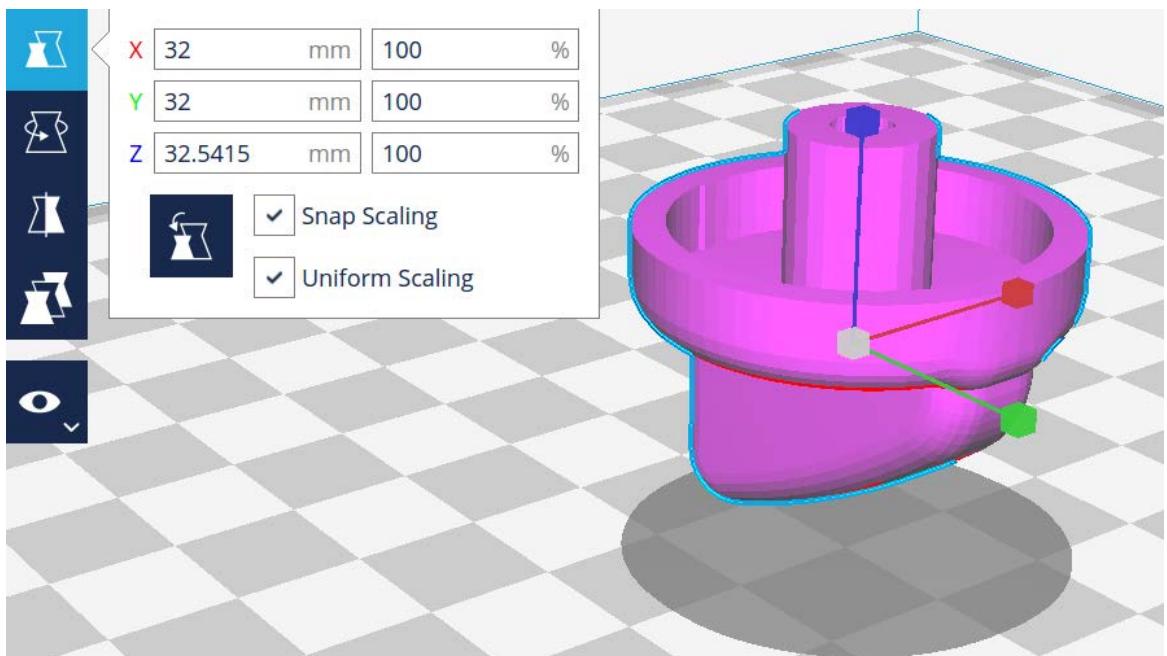


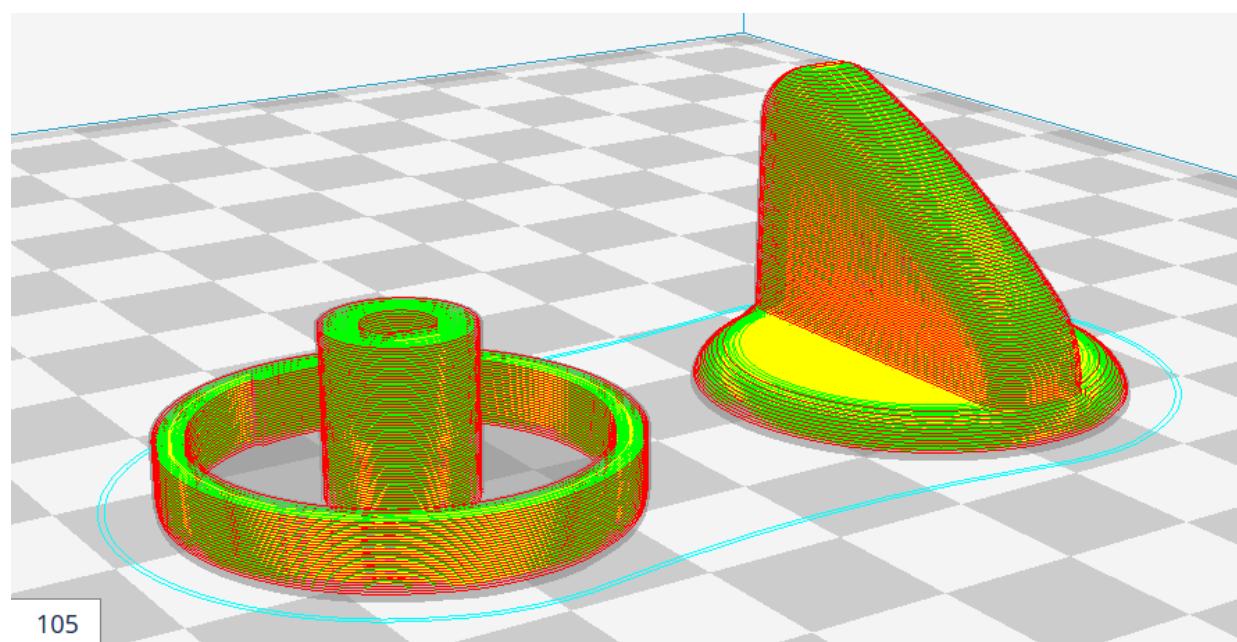
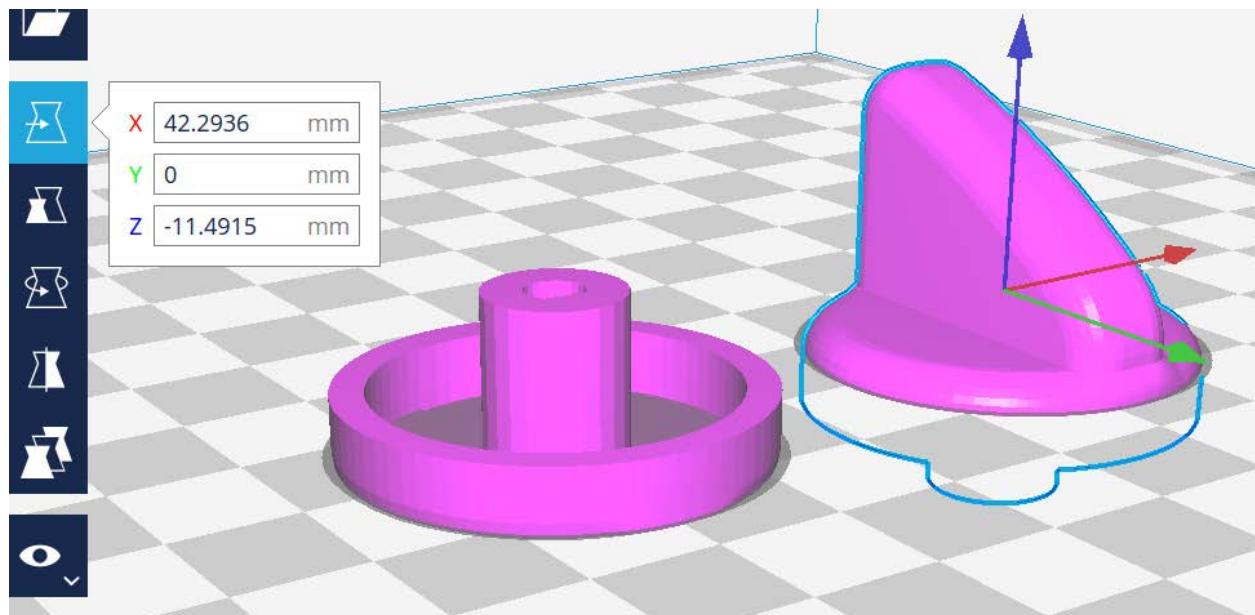
i

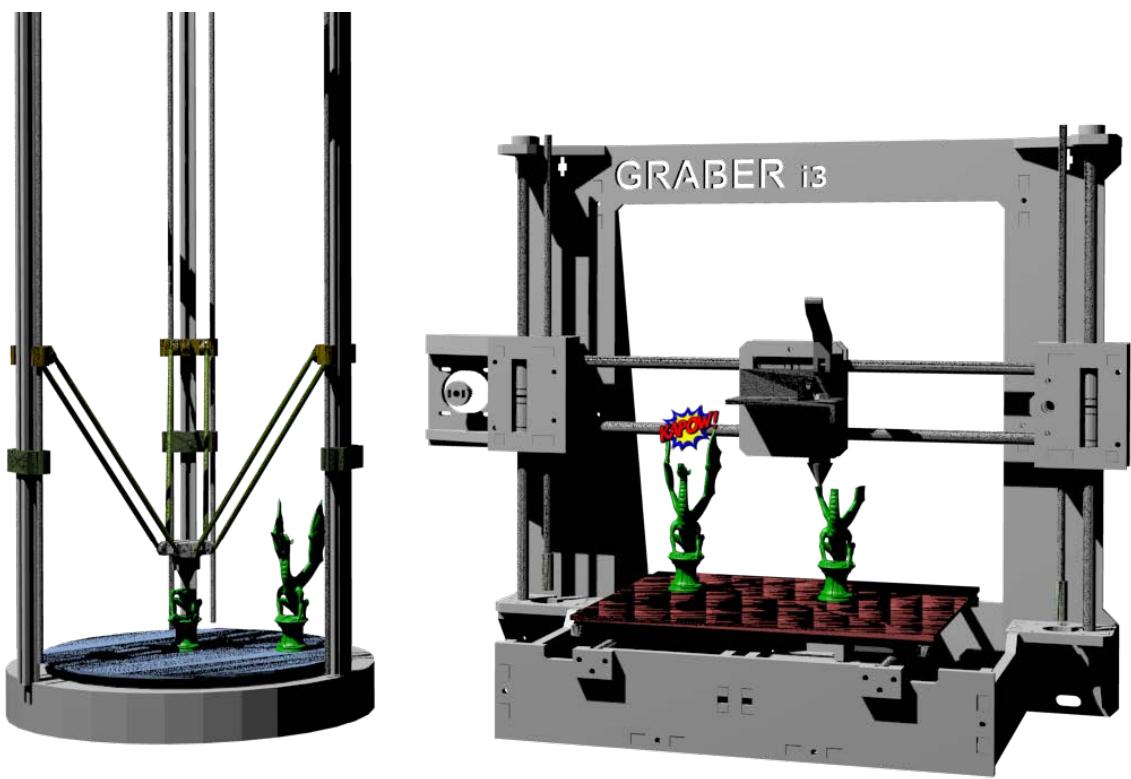


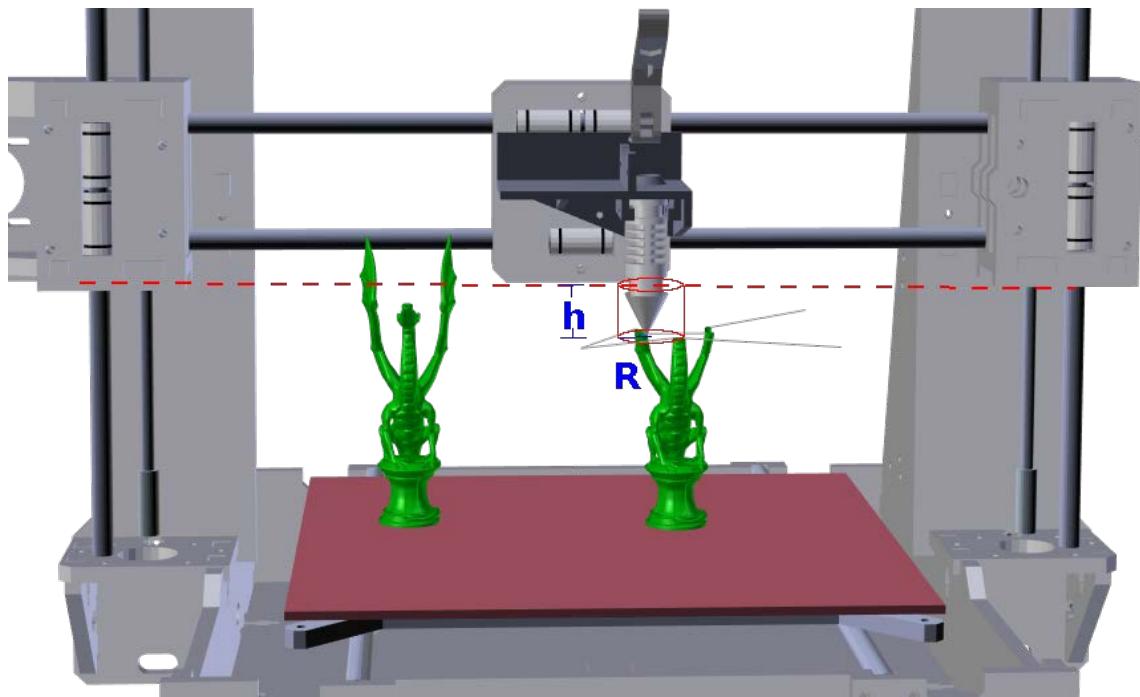
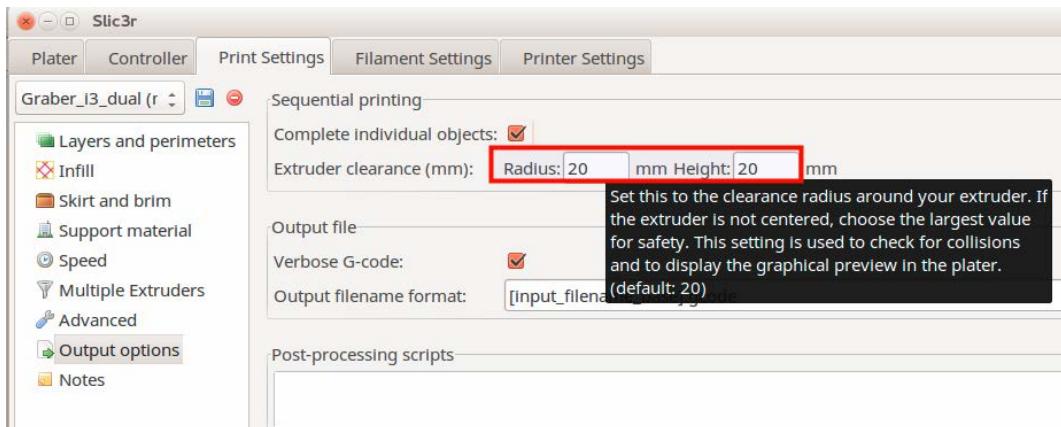


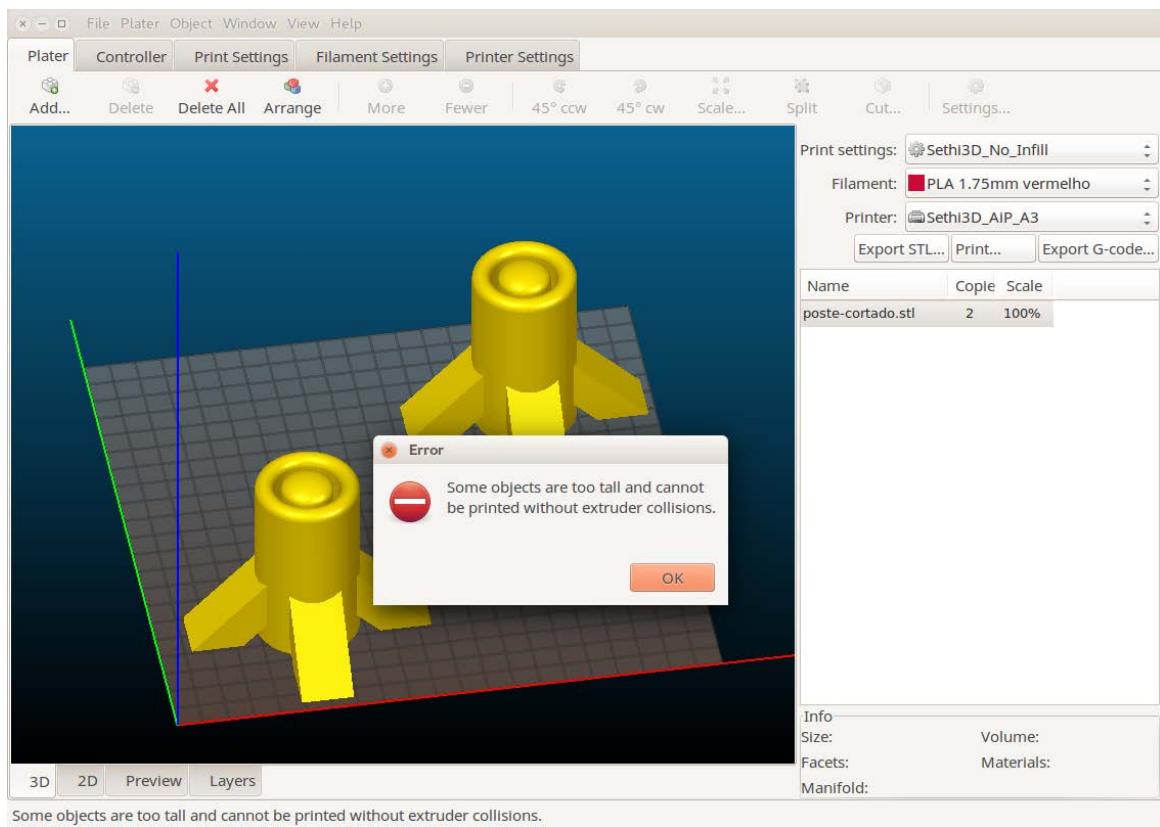
No layers were detected. You might want to repair your STL file(s) or check their size or thickness and retry.











Some objects are too tall and cannot be printed without extruder collisions.

Preferences

Printers

Activate **+Add** Remove Rename

Graber i3 modificada

Firmware Connect OctoPrint

Machine Settings

Printer

Printer Settings

- X (Width) 210 mm
- Y (Depth) 200 mm
- Z (Height) 200 mm
- Build Plate Shape: Rectangular
- Machine Center is Zero
- Heated Bed
- GCode Flavor: RepRap (Ma...)

Printhead Settings

X min	20
Y min	8
X max	5
Y max	10
Gantry height	
20	mm

Number of Extruders: 1

Material Diameter: 1.7 mm

Nozzle size: 0.4 mm

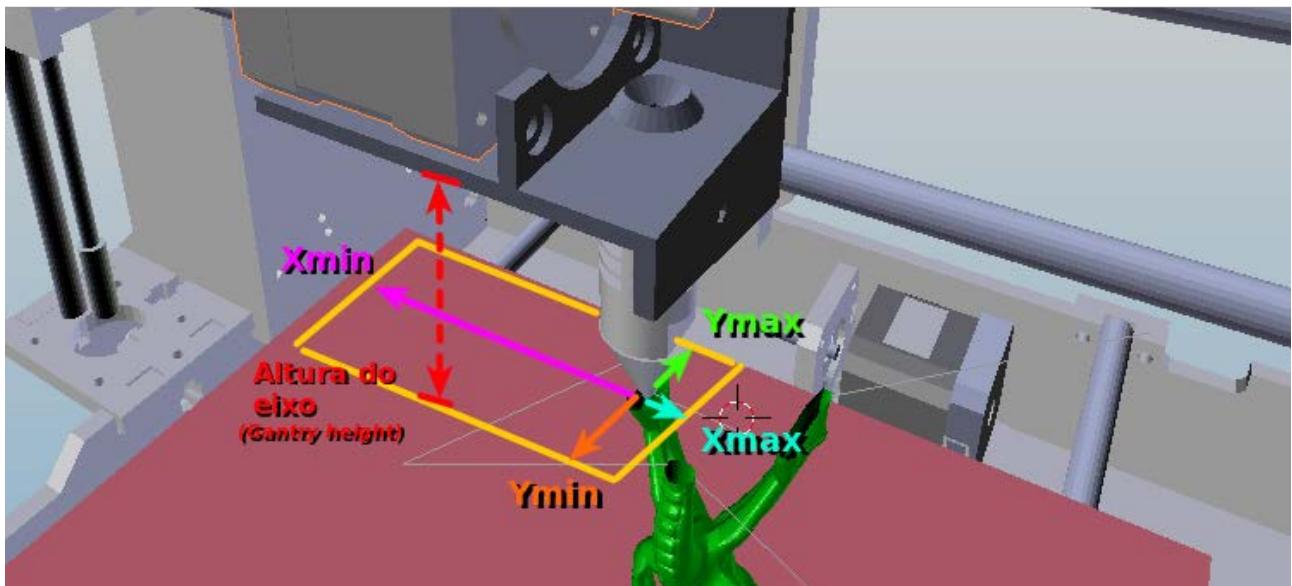
Start Gcode

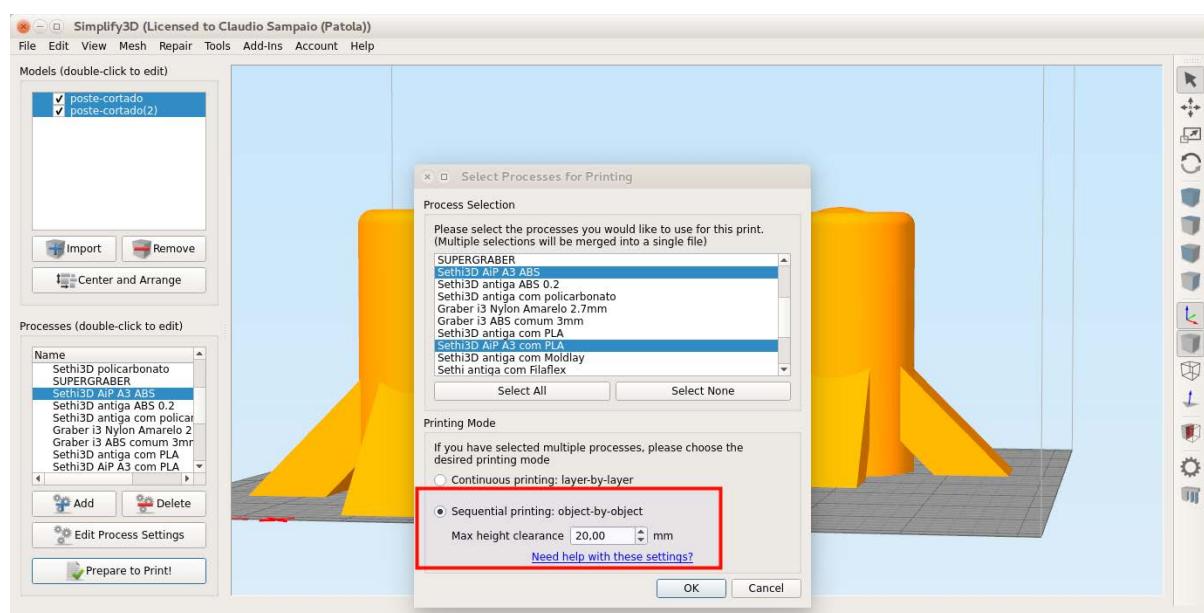
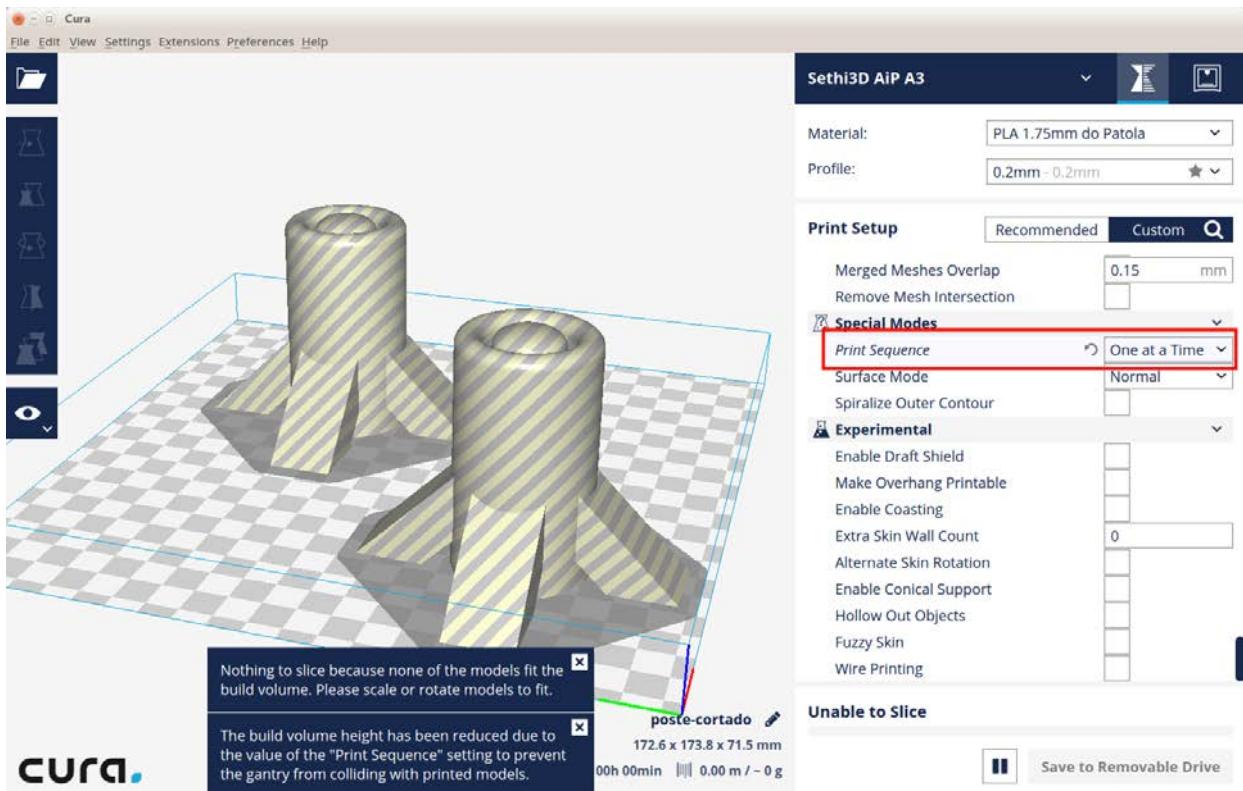
```
G28 ; home all X Y e Z
G21 .metric values
```

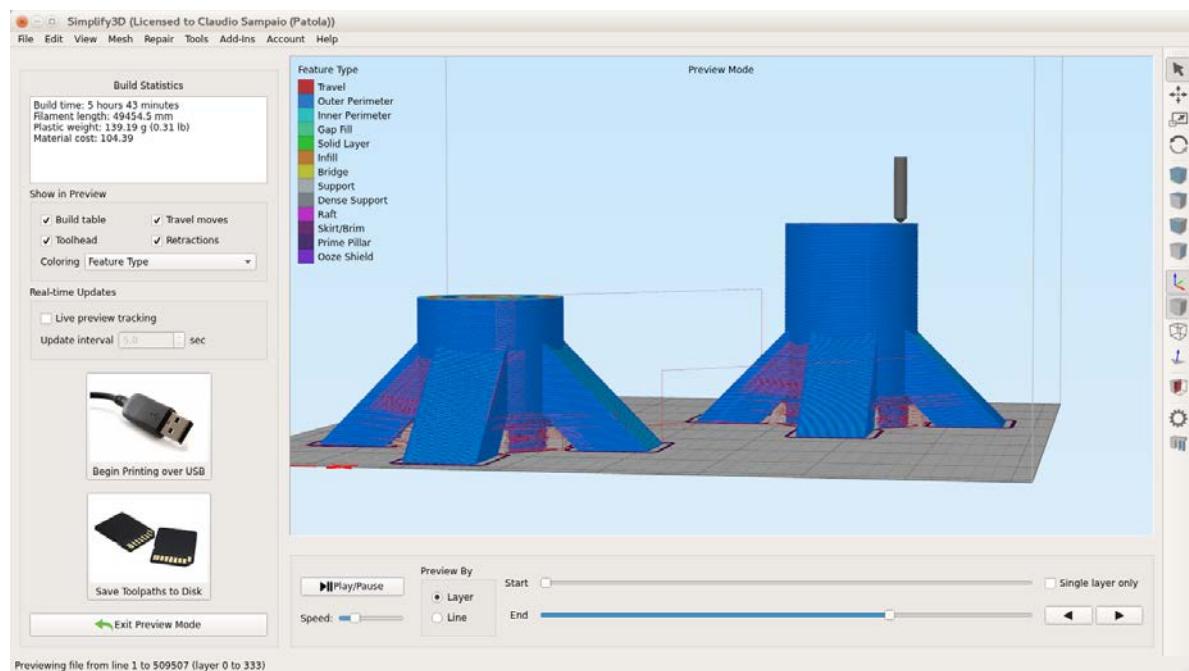
End Gcode

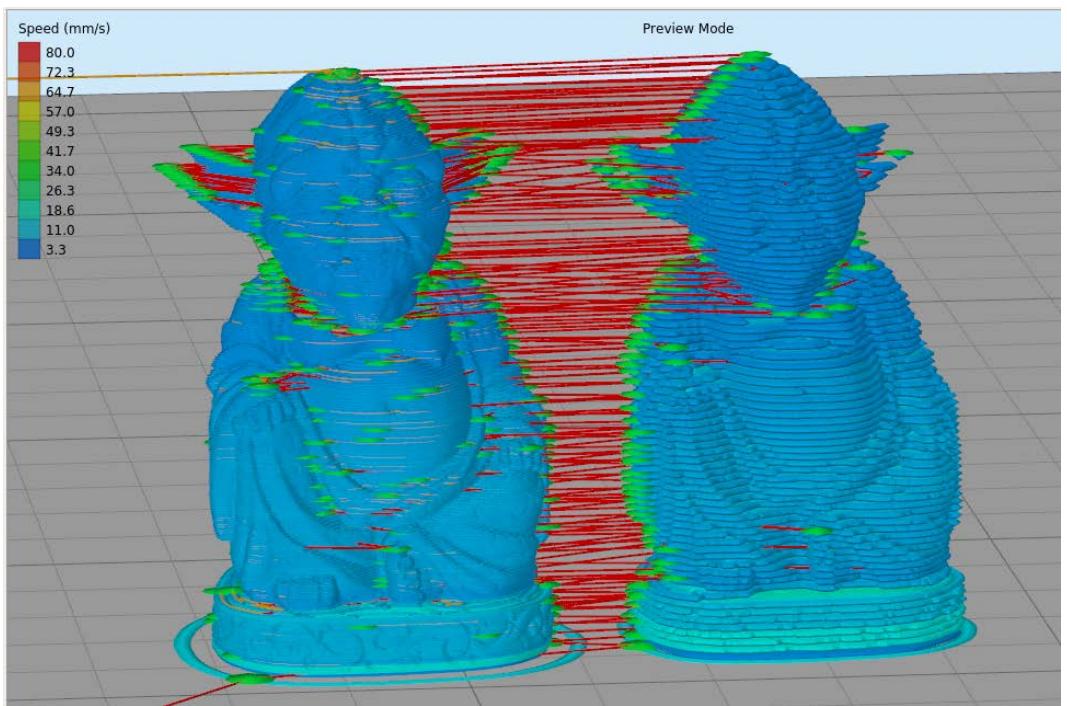
```
M104 S0
M140 S0
Retract the filament
```

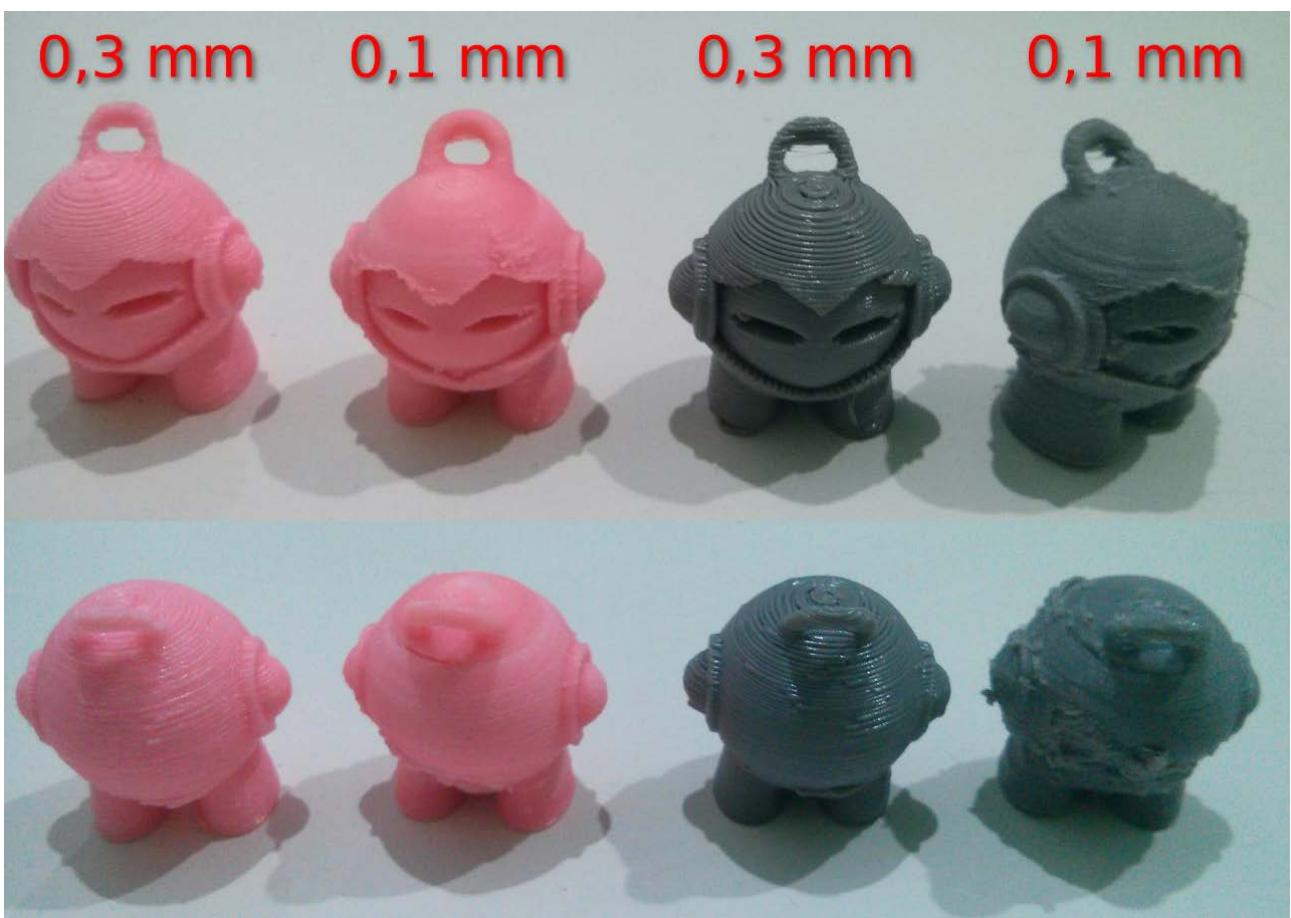
Close











prusaprinters.org/calculator/

Optimal layer height for your Z axis

Helps you to select layer height in a way, that Z axis moves only by full step increments. Z axis isn't usually enabled during inactivity. If the axis is disabled during micro-step, axis jumps to the closest full step and introduce error. This effect is occurring to some extent even while leaving the Z axis motors enabled. This is most useful for machines with imperial leadscrews but also for unusual layer heights with metric leadscrews.

Motor step angle
1.8° (200 per revolution)

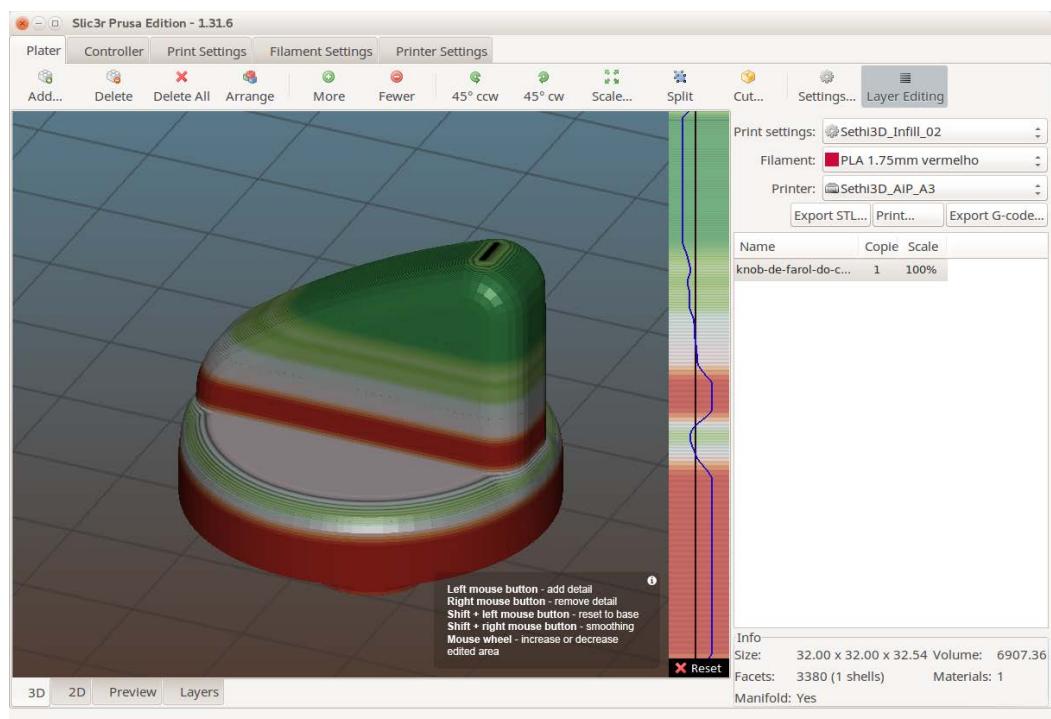
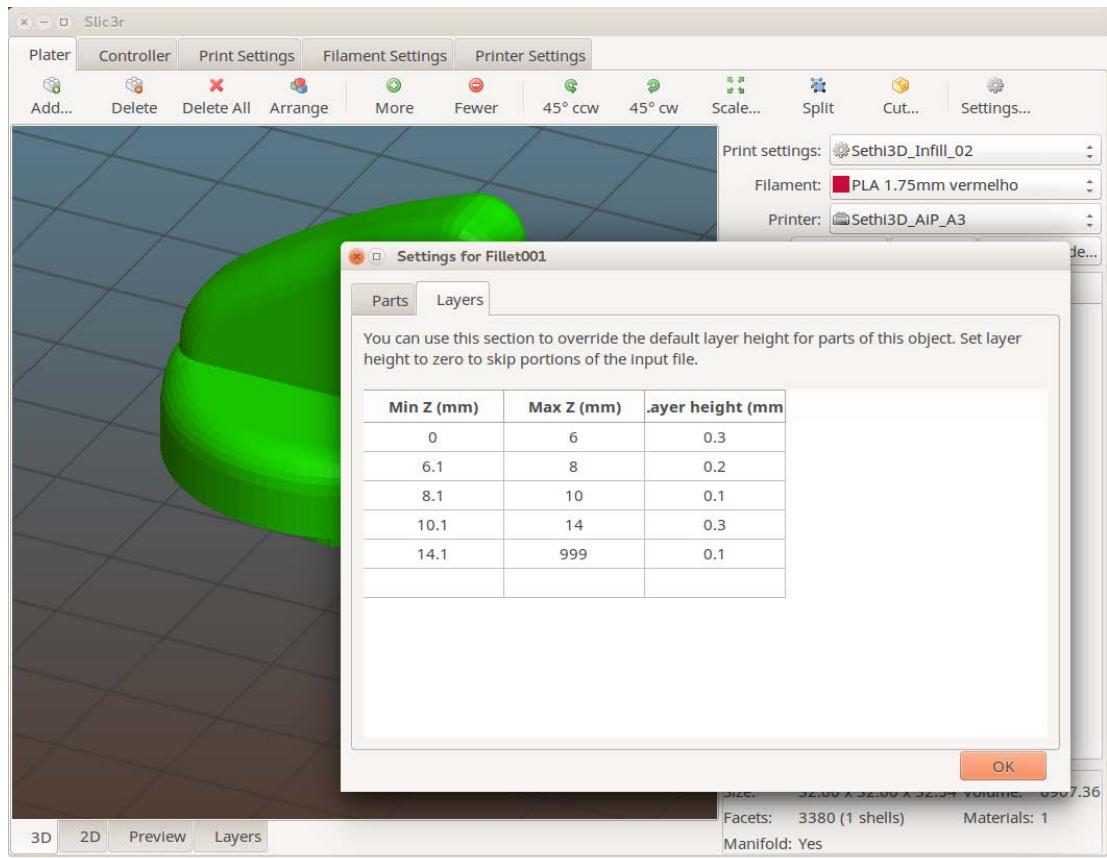
Leadscrew pitch
0.8 mm/revolution

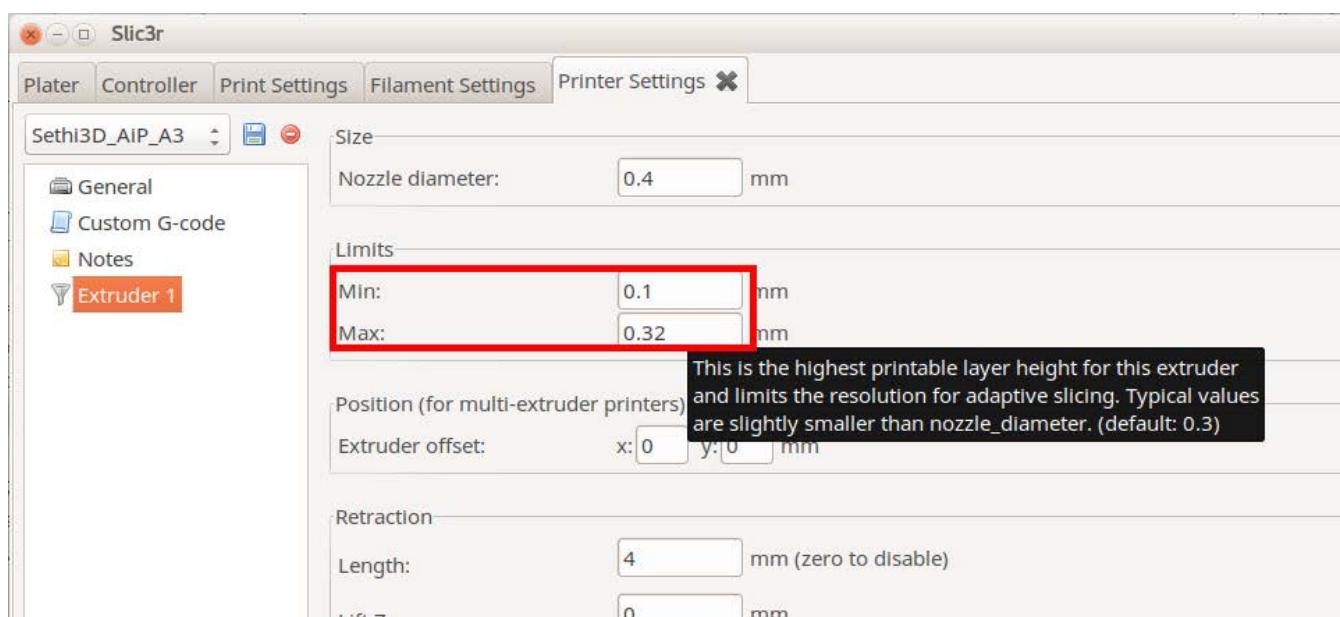
Gear ratio
1 : 1

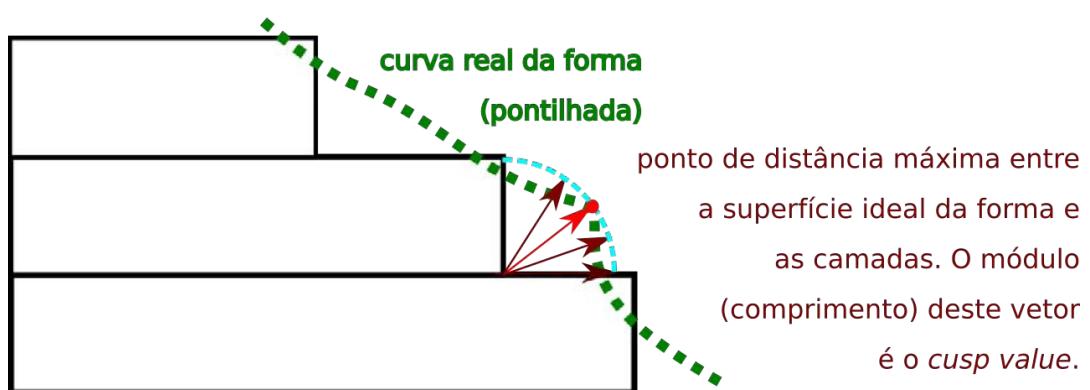
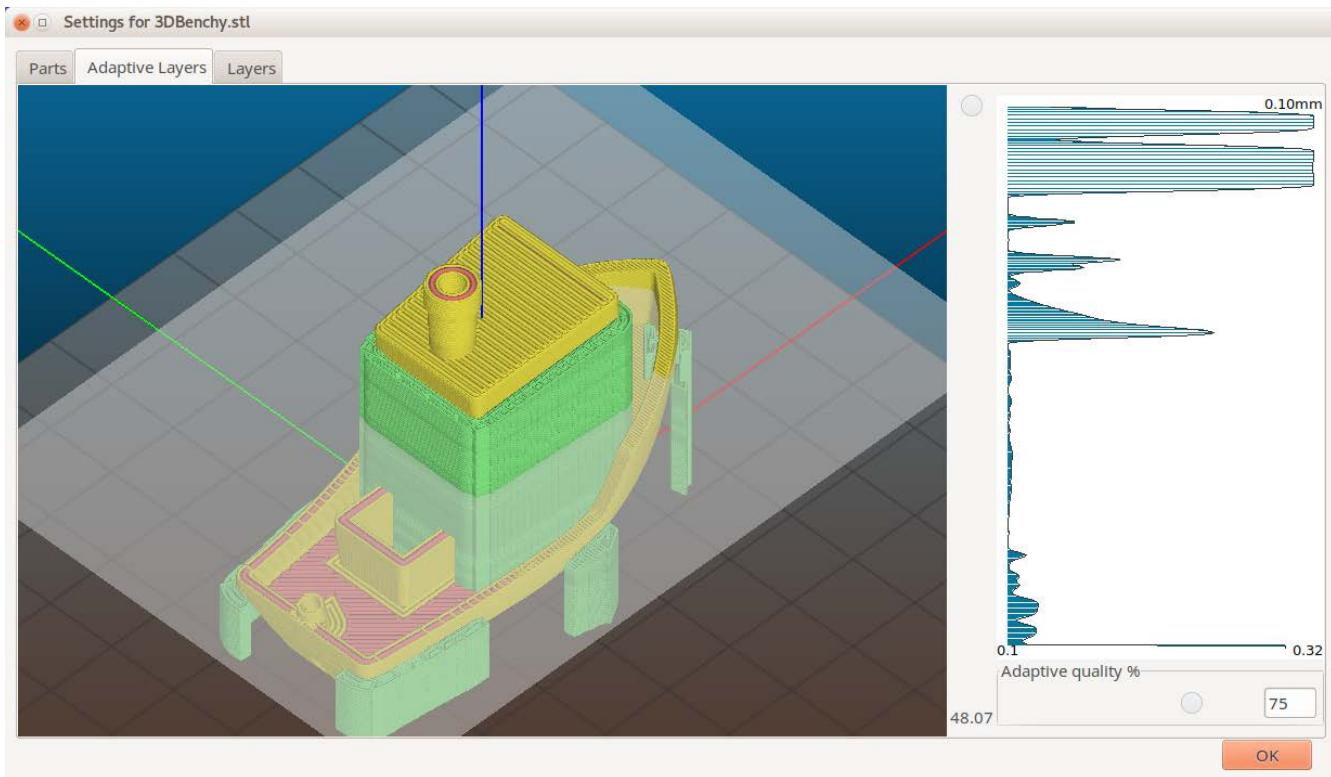
Desired layer height
0.15 mm

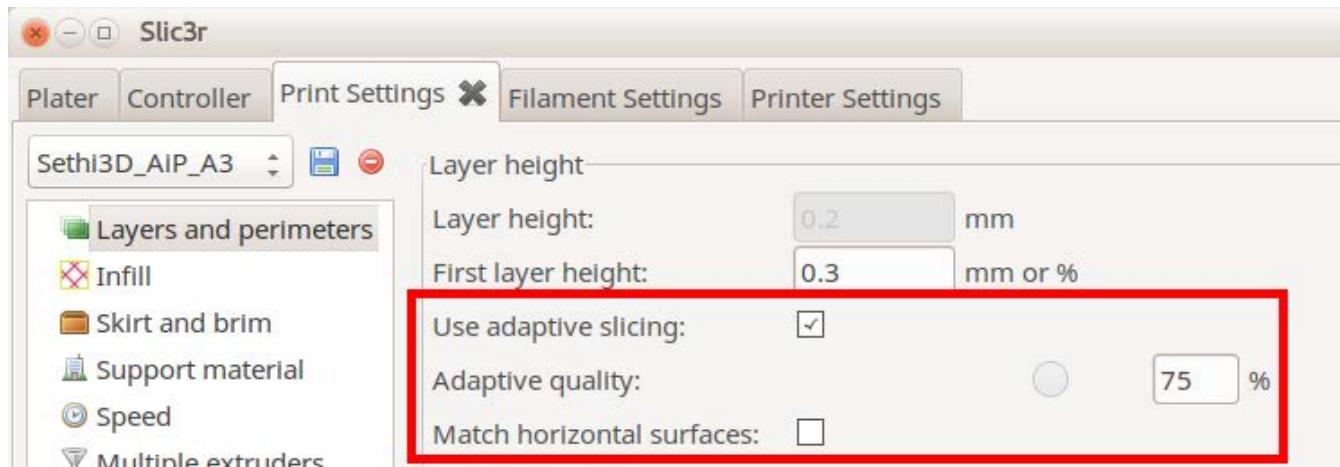
Pitch presets
M5 - metric (0.8mm per rotation)

Layer height	Error over 10cm	Number of steps	Step length
0.1480	0mm	37	0.004mm
0.15	-1.333333333333335mm	37.5	0.004mm
0.1520	0mm	38	0.004mm



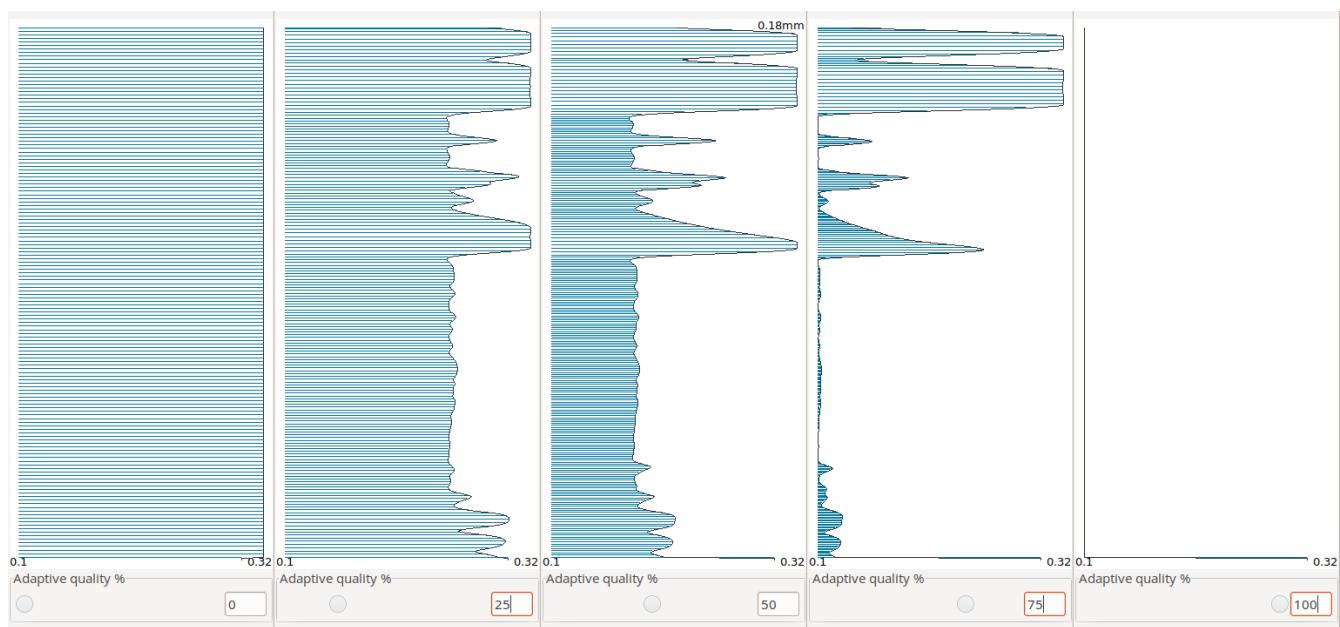


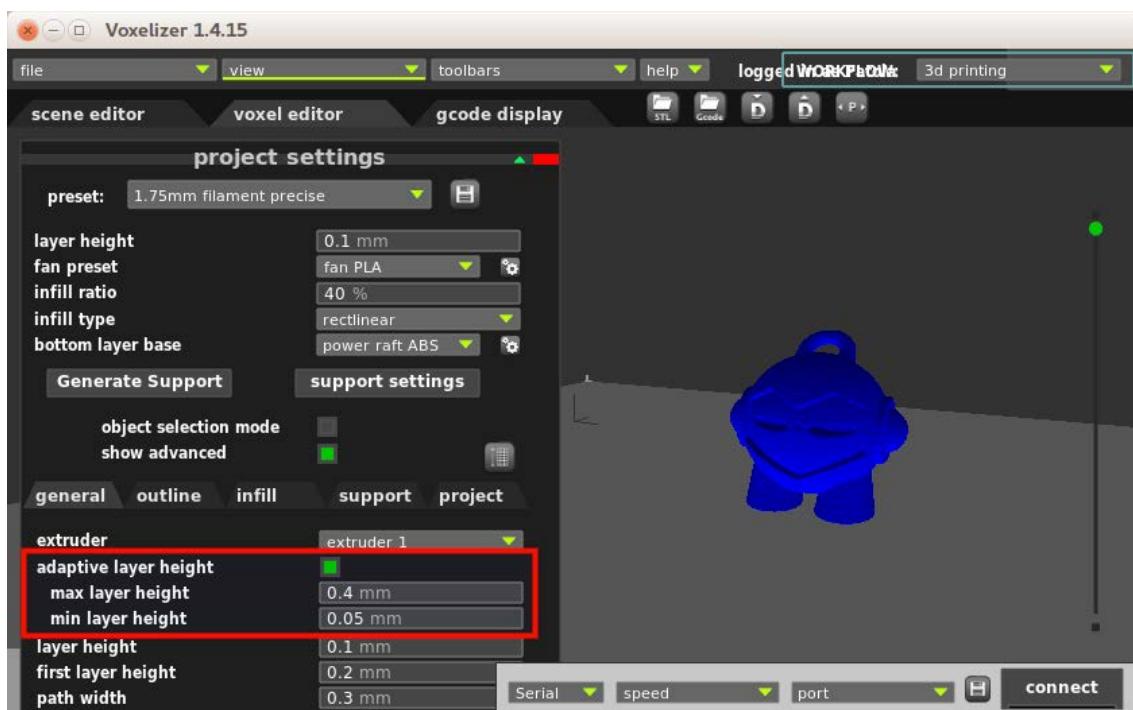
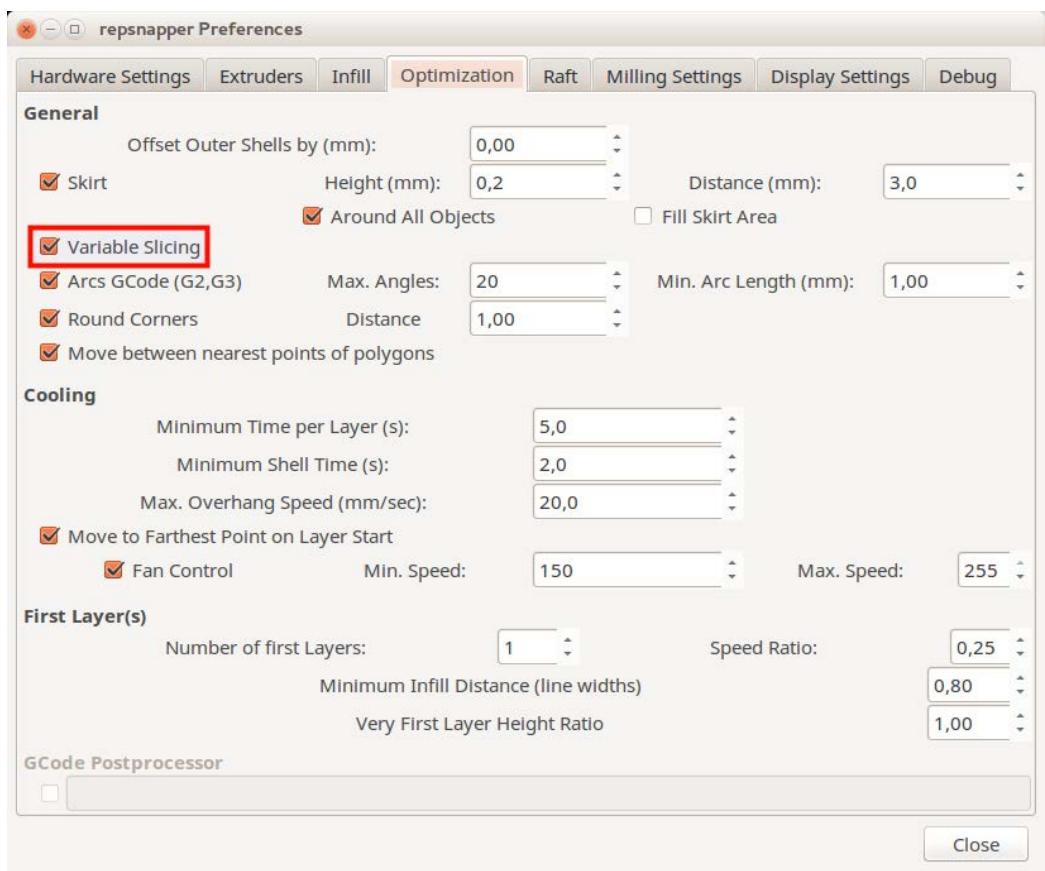




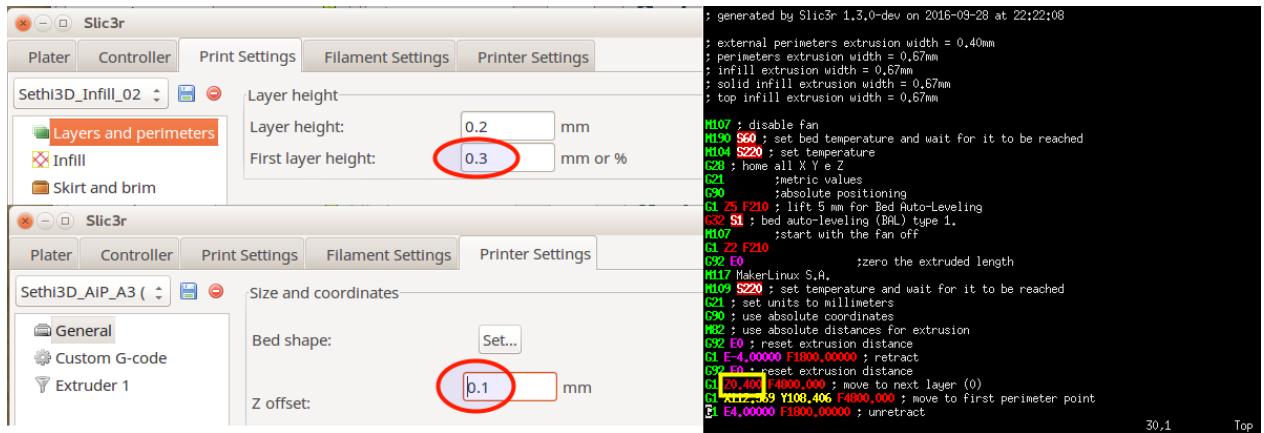
printer settings

Match horizontal surfaces



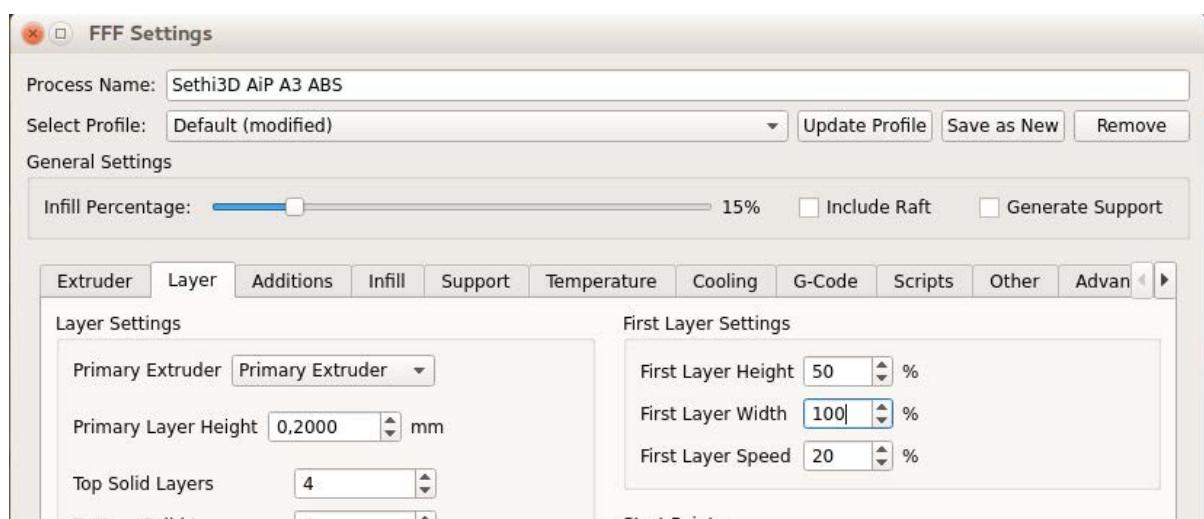




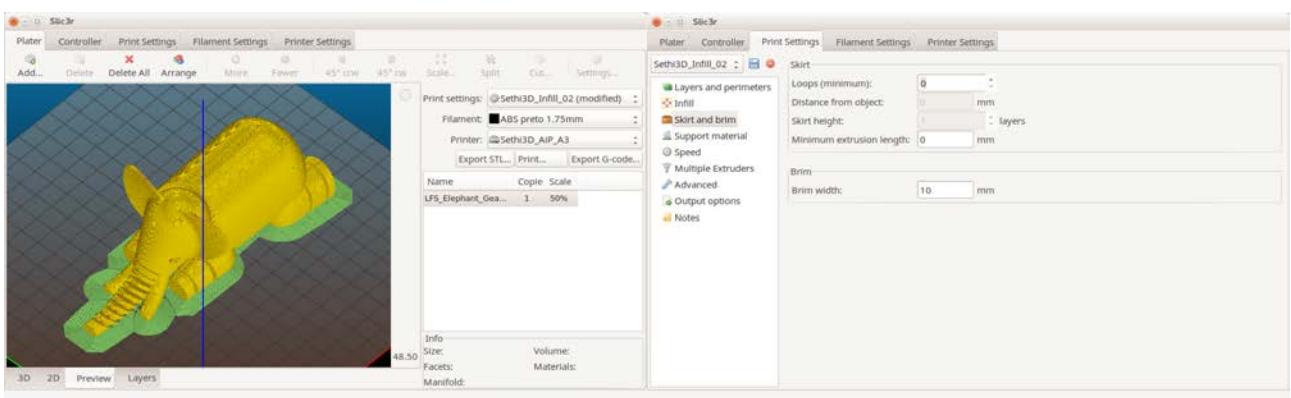
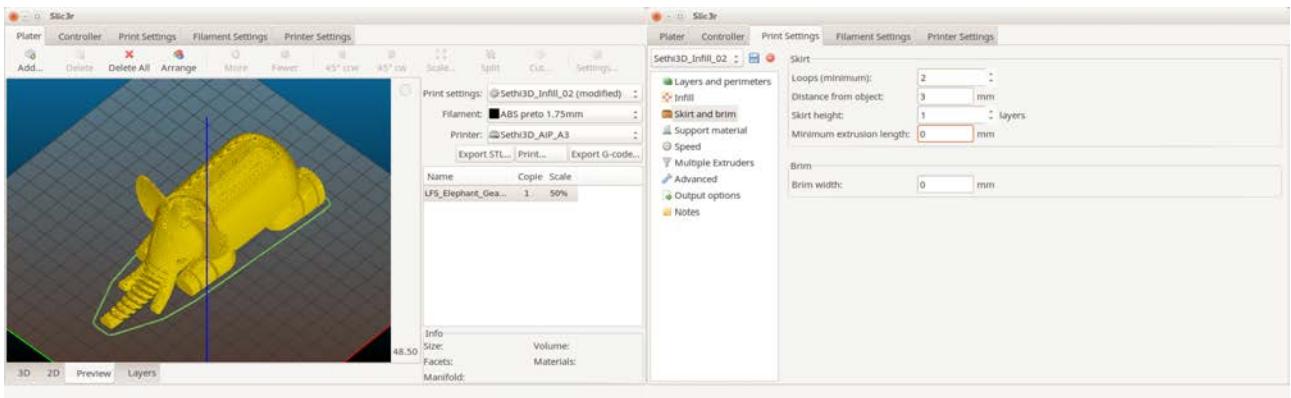


M306

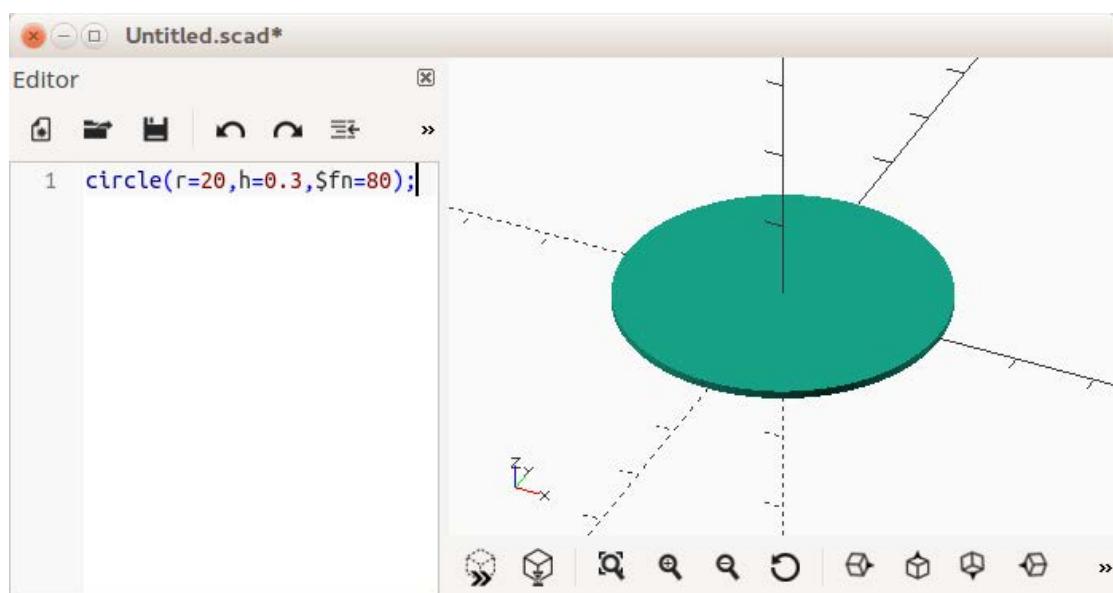
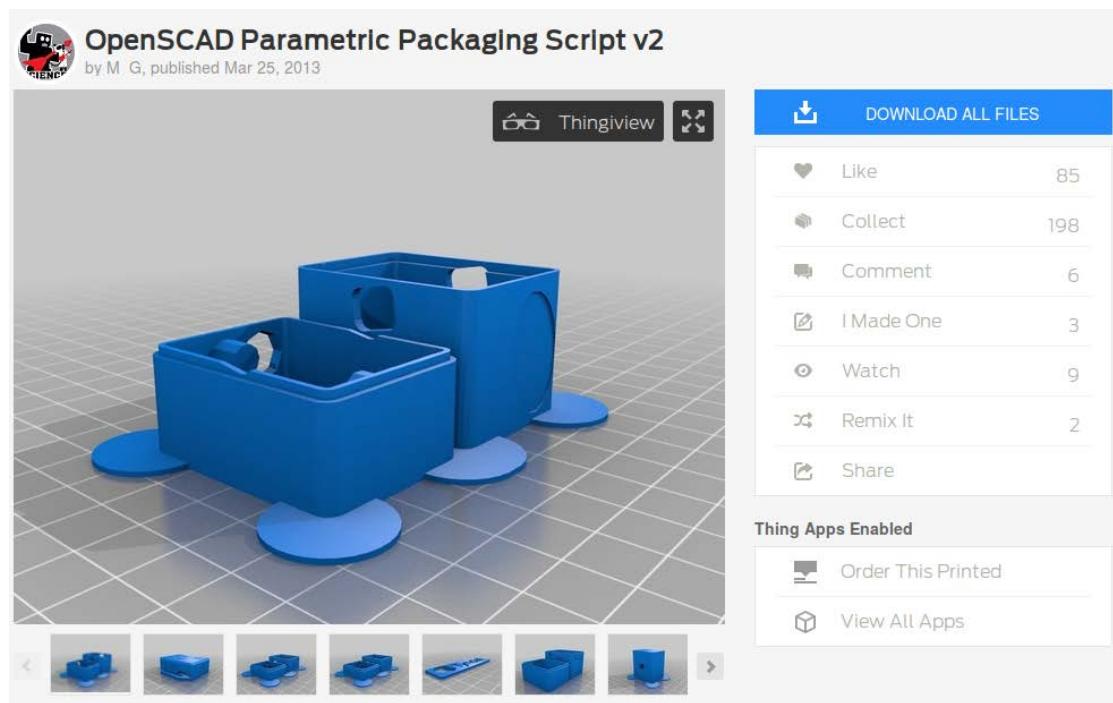
G10 L2

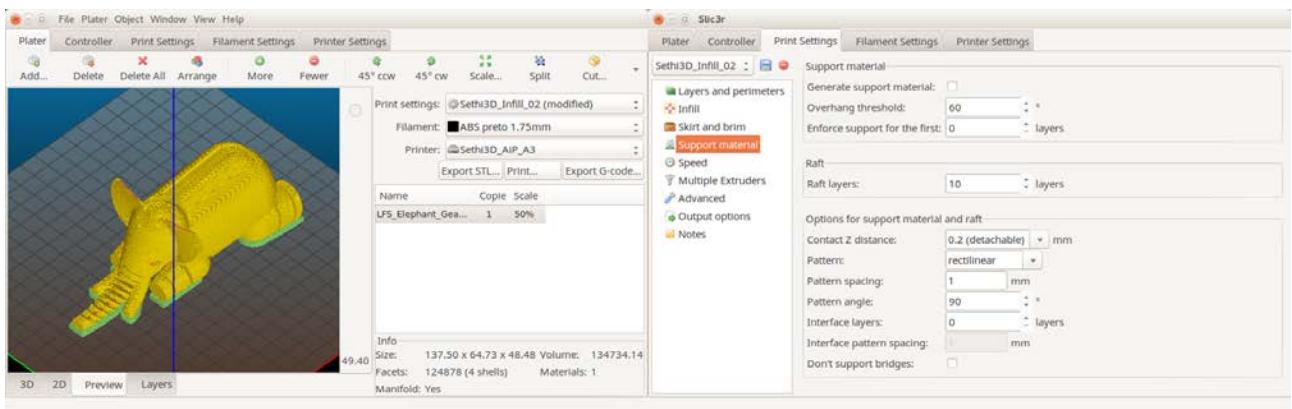


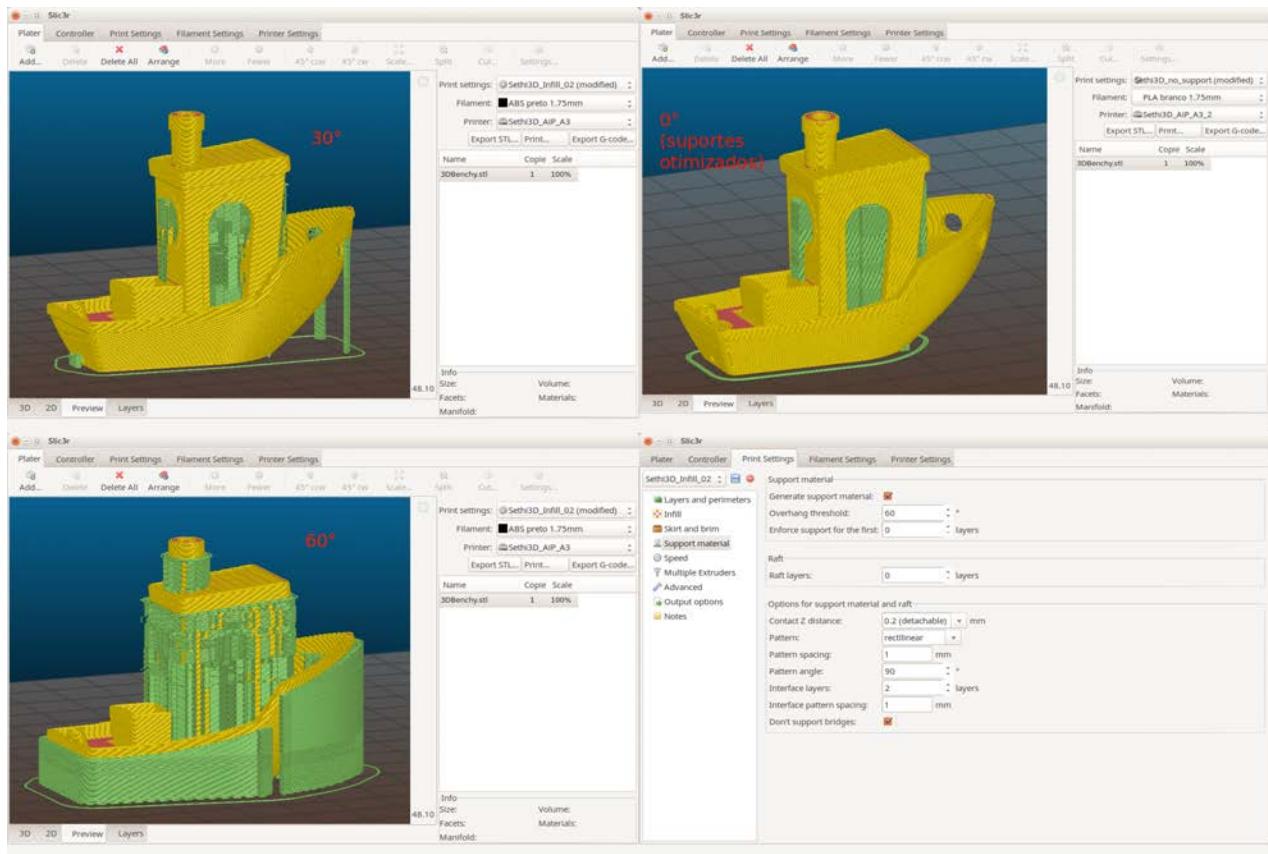




i









Slic3r Prusa Edition - 1.31.6

Plater Controller Print Settings Filament Settings Printer Settings

Add... Delete Delete All Arrange More About Slic3r

0.30 48.00
□ 1 Layer

Slic3r Prusa
Version 1.31.6

Copyright © 2016 Vojtech Bubnik, Prusa Research.
Copyright © 2011-2016 Alessandro Ranellucci.
Slic3r is licensed under the [GNU Affero General Public License, version 3.](#)

Contributions by Henrik Brix Andersen, Nicolas Dandrimont, Mark Hindess, Petr Ledvina, Y. Sapir, Mike Sheldrake and numerous others. Manual by Gary Hodgson. Inspired by the RepRap community.

OK

3D 2D Preview Layers

Slic3r Prusa Edition - 1.31.6

Plater Controller Print Settings Filament Settings Printer Settings

Sethi3D_Infill_02

- Layers and perimeters
- Infill
- Skirt and brim
- Support material**
- Speed
- Multiple Extruders
- Advanced
- Output options
- Notes

Support material

Generate support material:

Overhang threshold: 0

Enforce support for the first: 0 layers

Raft

Raft layers: 0 layers

Options for support material and raft

Contact Z distance: 0 (soluble) mm

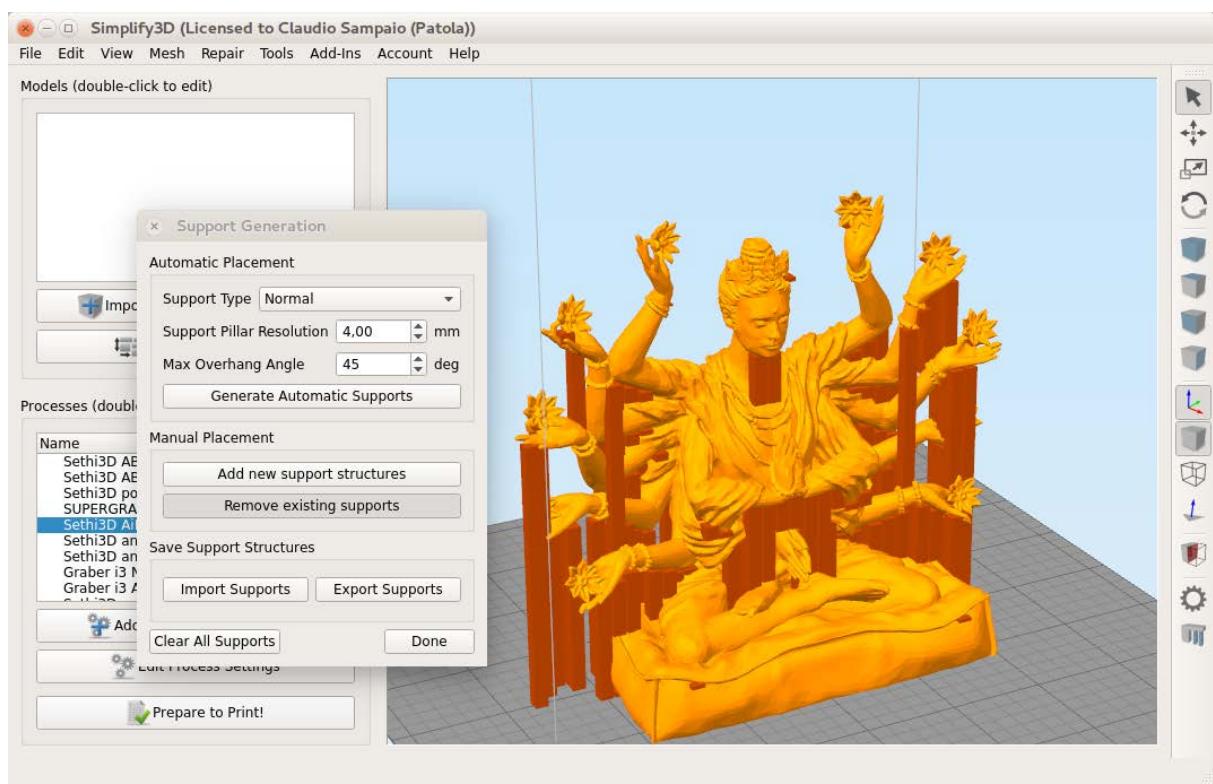
Pattern: rectilinear

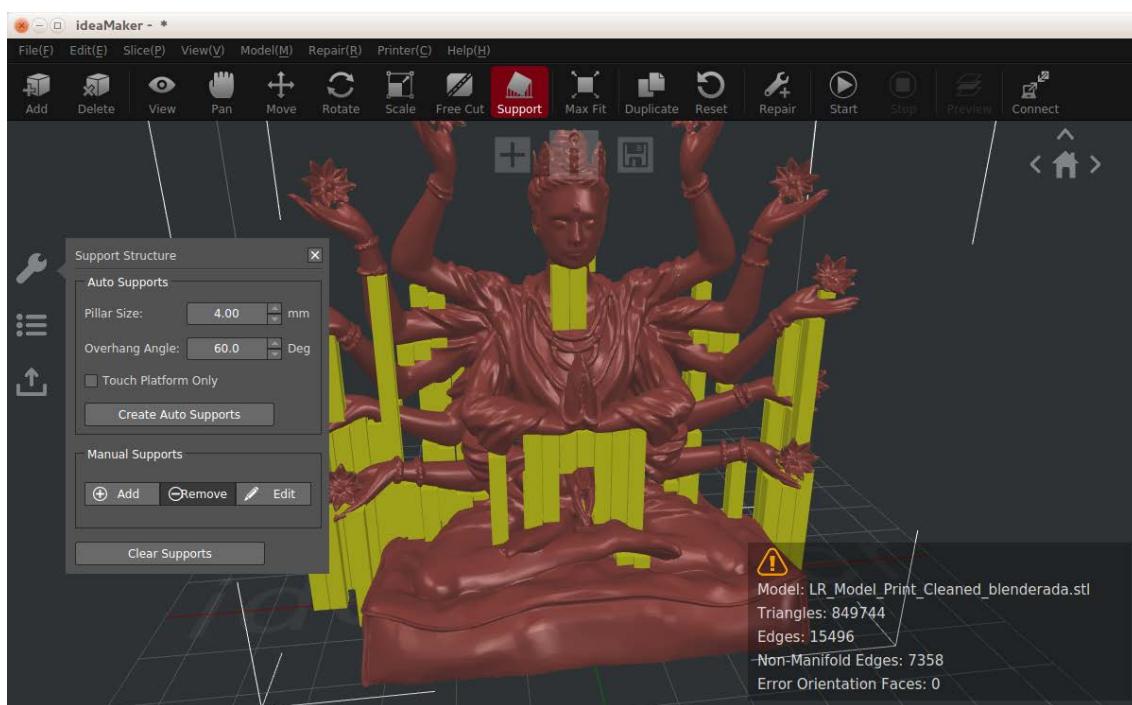
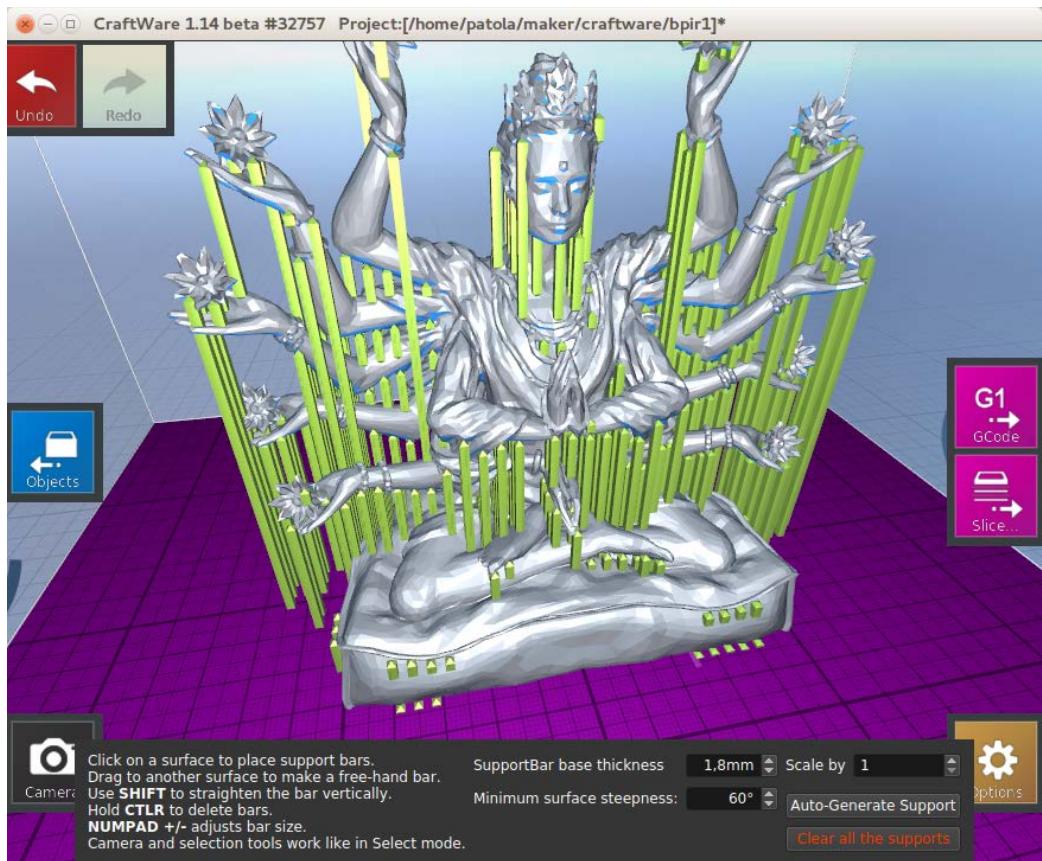
With sheath around the support:

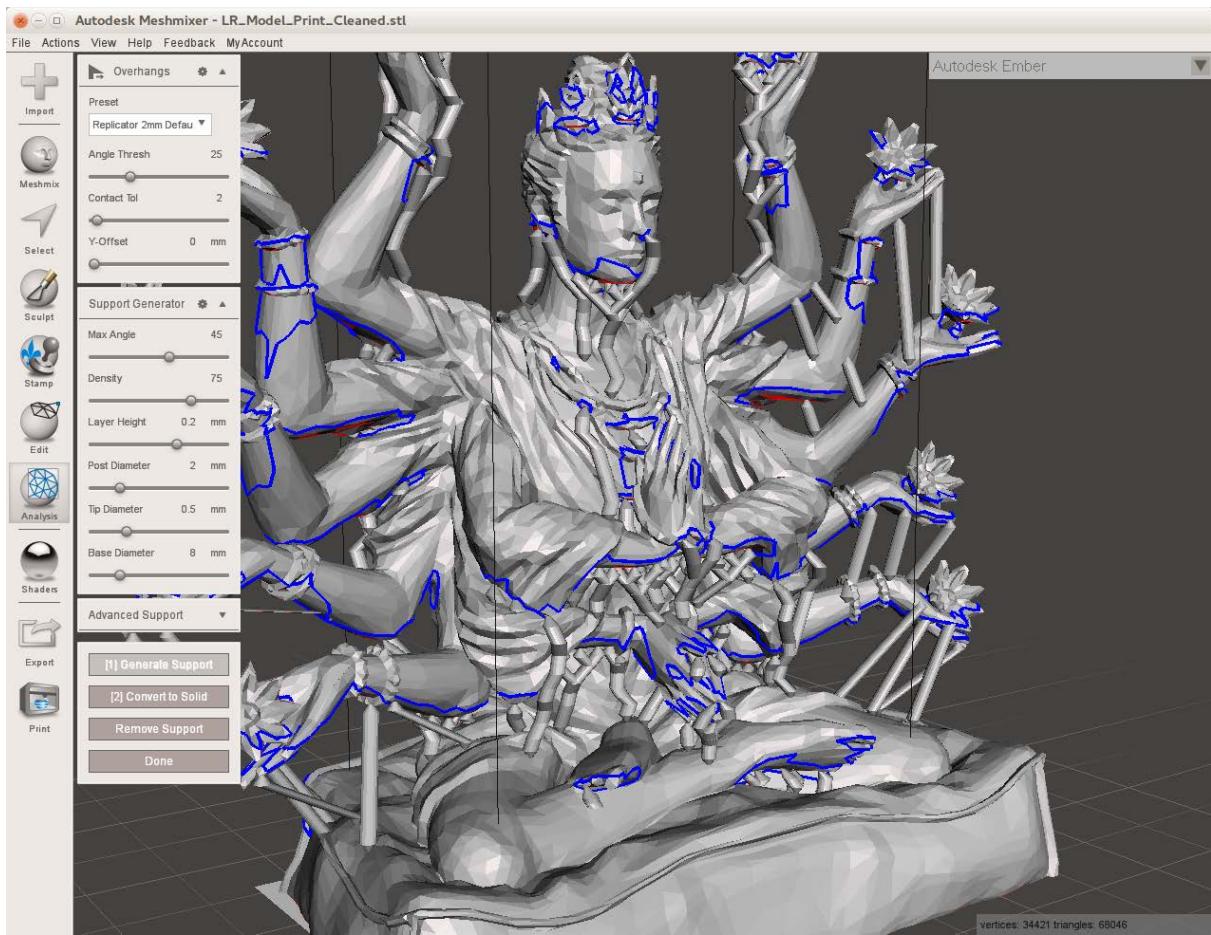
Pattern spacing: 1 mm

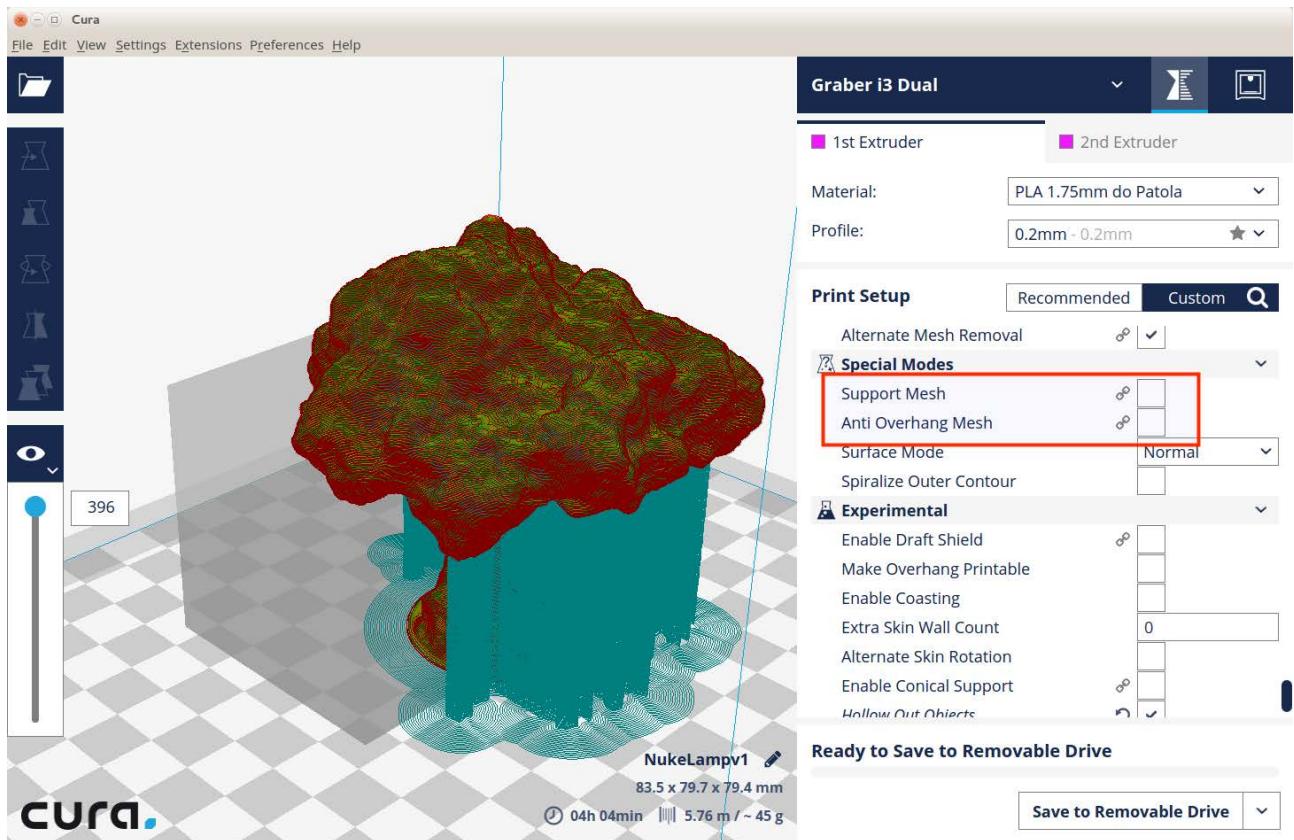
Pattern angle: 90 °

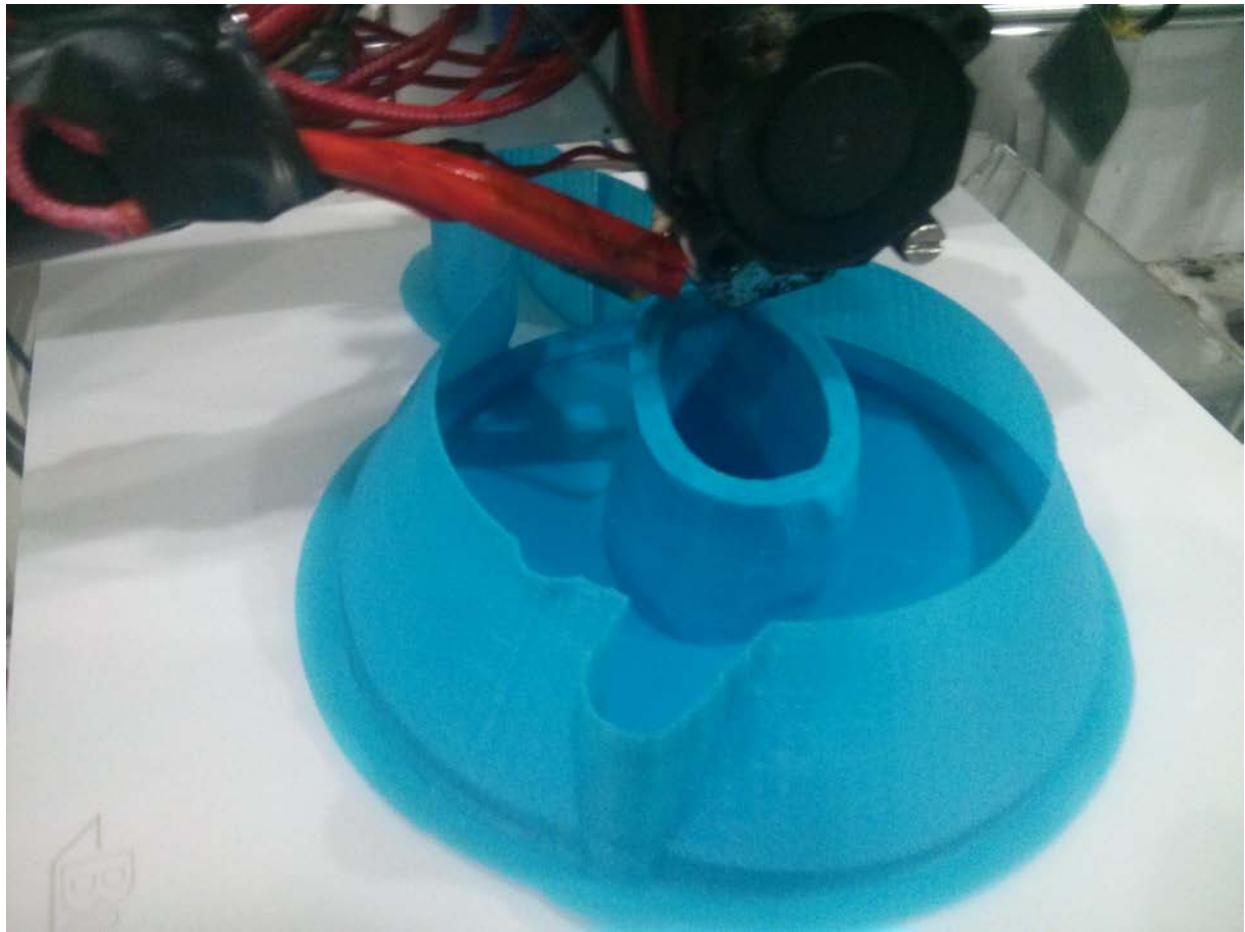
Interface layers: 0 layers

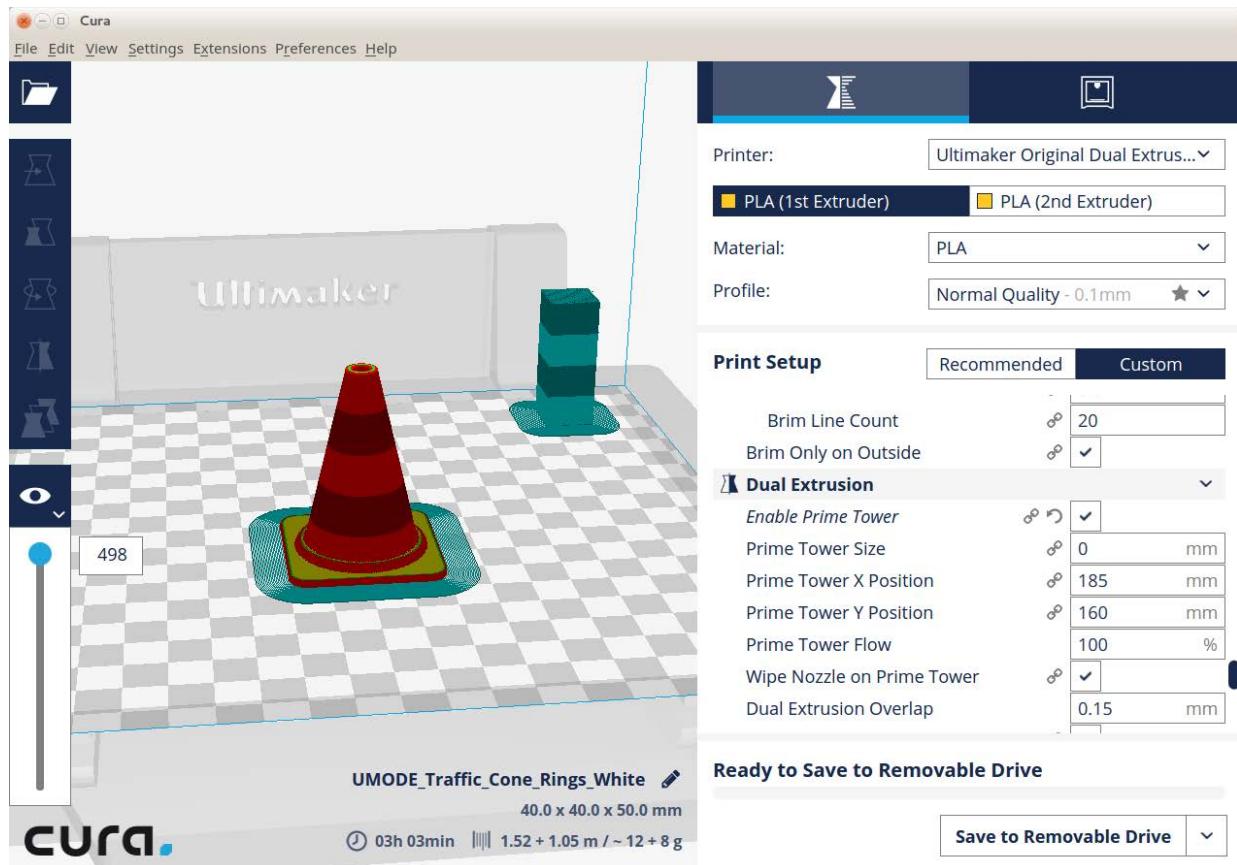












File Edit View History Bookmarks Tools Help

lifesign... story:w... story:s... Perfect... YouTube Slic3r Man... Cura 2... Inbox (...) Brid... default

www.thingiverse.com/thing:12925 Search You

Thingiverse DASHBOARD EXPLORE EDUCATION CREATE Enter a search term

Bridge Torture Test
by trifid hunter, published Oct 26, 2011

DOWNLOAD ALL FILES

- Like 605
- Collect 1203
- Comment 57
- I Made One 105
- Watch 19
- Remix It 11
- Share

Thing Apps Enabled

- Order This Printed
- View All Apps

Thing Details	Thing Files	Apps	57	105	1203	11
---------------	-------------	------	----	-----	------	----

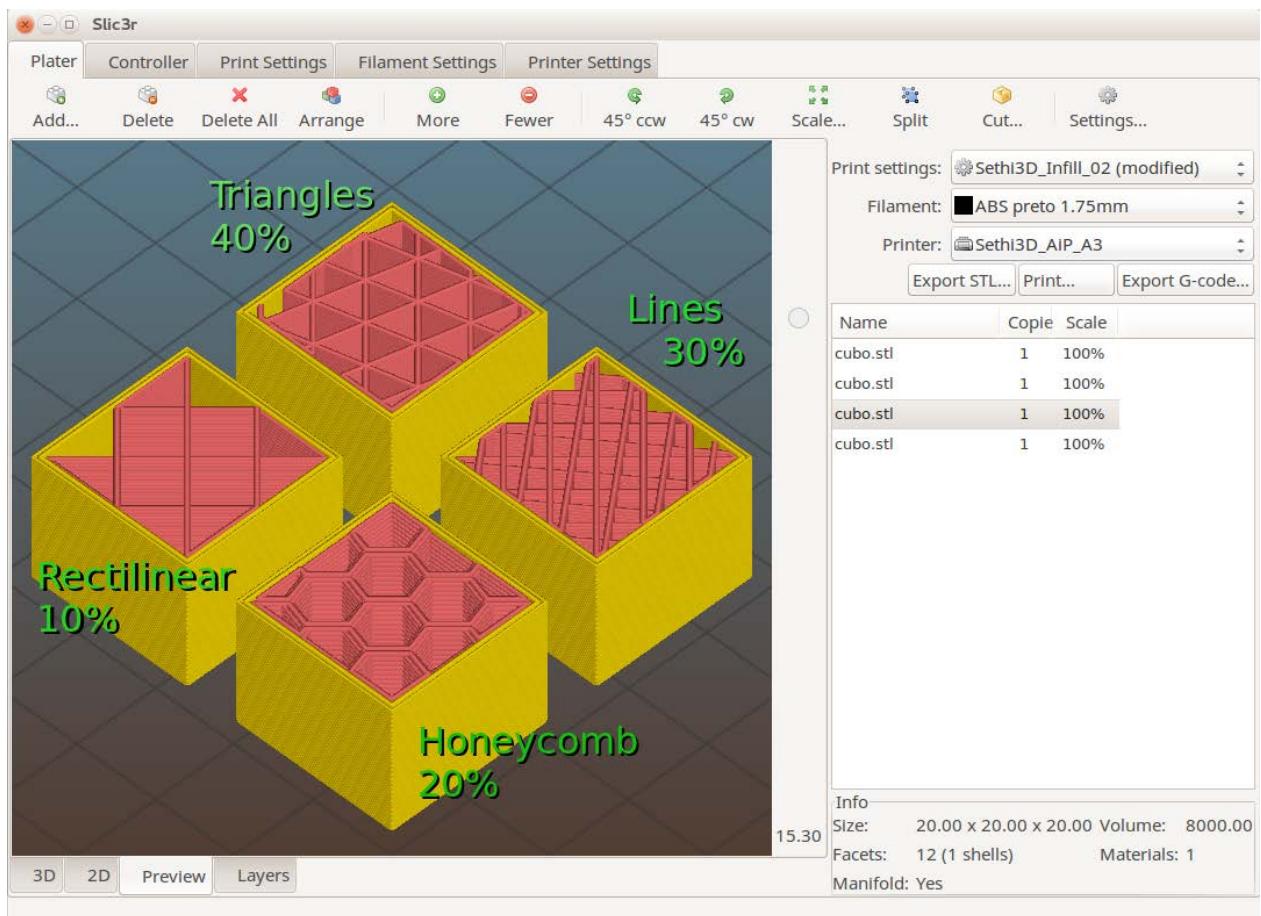


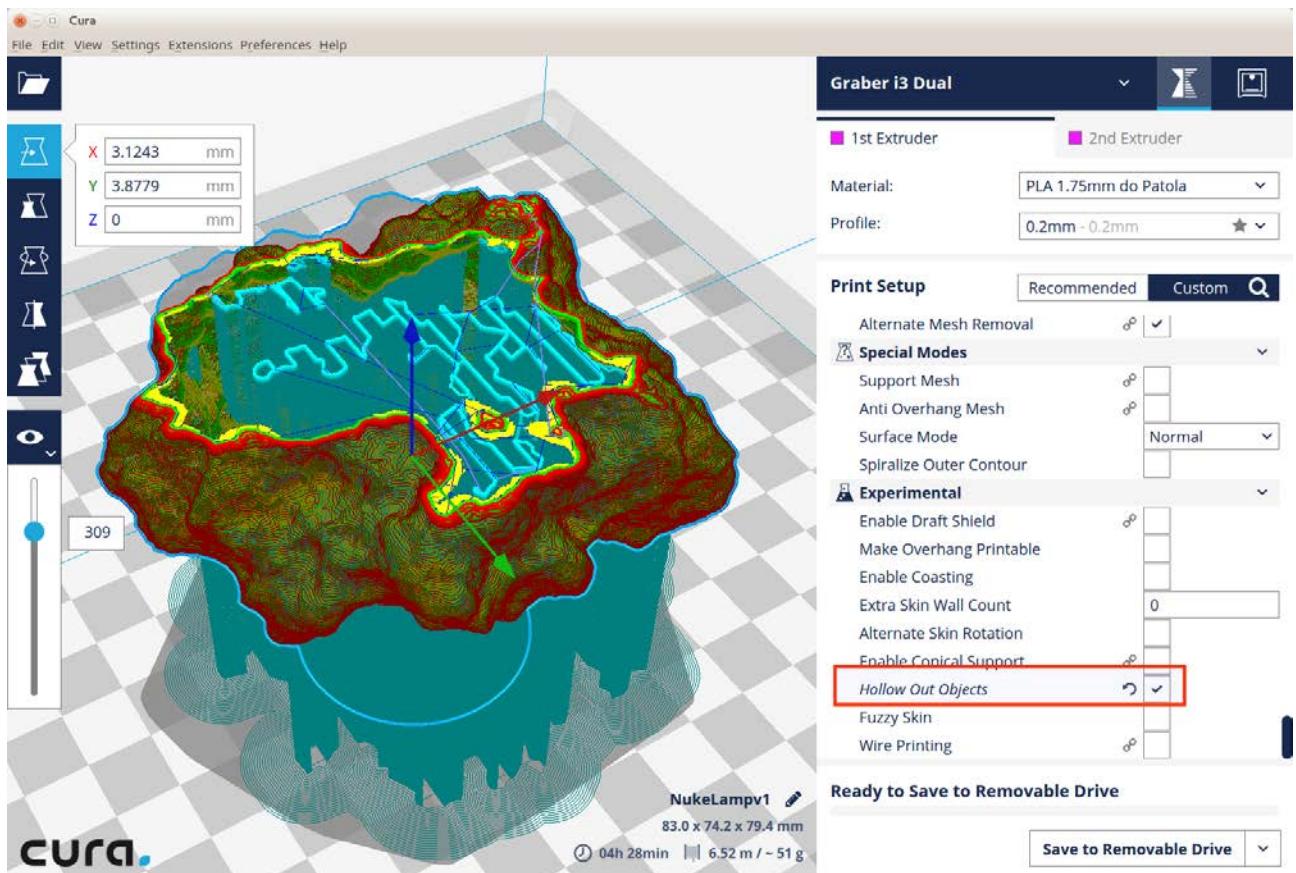
Cut the hair with slim and sharp scissors as close to the wall as possible. If you can't cut them all at once, cut them as deep as you can, and then cut and remove parts of the wall.

Use heat gun to shape the hair.

The image displays four separate windows of the Slic3r software interface, each showing different sections of the printer settings:

- Top Left Panel:** Shows Print Settings for "Sethi3D_no_supp". It includes fields for Solid infill (50 mm/s or %), Top solid infill (40 mm/s or %), Support material (60 mm/s), Support material interface (100% mm/s or %), Bridges (80 mm/s), and Gap fill (20 mm/s). The "Bridges" field is highlighted with a red box.
- Top Right Panel:** Shows Print Settings for "Sethi3D_Infill_02". It includes options for support material and raft, such as Generate support material (checked), Overhang threshold (60), Enforce support for the first (0 layers), Raft layers (0 layers), and Options for support material and raft (Contact Z distance, Pattern, Pattern spacing, Pattern angle, Interface layers, Interface pattern spacing). The "Don't support bridges" checkbox is highlighted with a red box.
- Middle Left Panel:** Shows Print Settings for "Sethi3D_no_supp". It includes Overlap (Infill/perimeters overlap: 15%) and Flow (Bridge flow ratio: 0.92). The "Bridge flow ratio" input field is highlighted with a red box.
- Middle Right Panel:** Shows Print Settings for "ABS preto 1.75m". It includes Cooling settings (Fan speed: Bridges fan speed: 100%, Disable fan for the first (0 layers)), Fan settings (Fan will be turned off), and Cooling thresholds (Enable fan if layer print time is below: 20 approximate seconds, Slow down if layer print time is below: 30 approximate seconds, Min print speed: 100 mm/s). The "Bridges fan speed" input field is highlighted with a red box.





Wall Thickness

The thickness of the outside walls in the horizontal direction. This value divided by the wall line width defines the number of walls.

Affects

- Wall Line Count

Shell

Wall Thickness

Wall Line Count

Outer Wall Wipe Distance

Top/Bottom Thickness

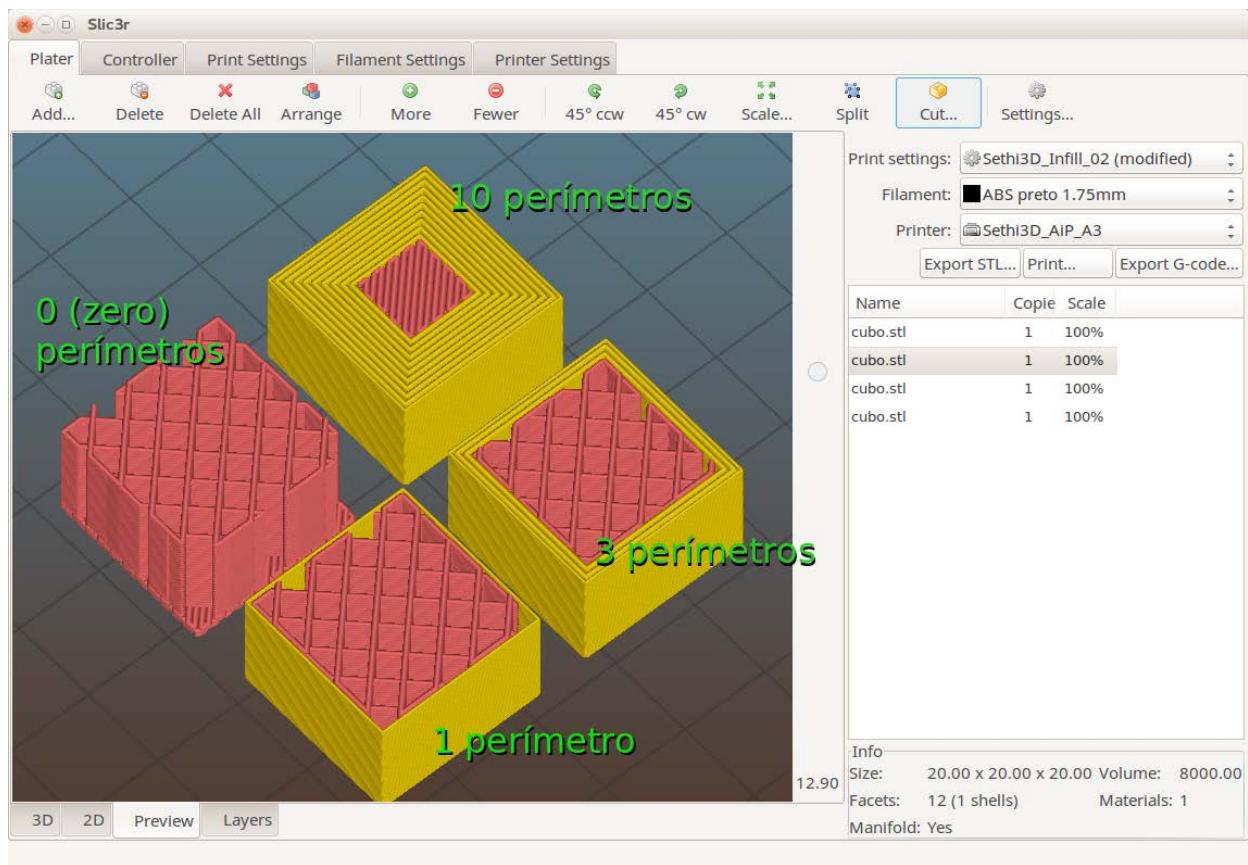
Top Thickness

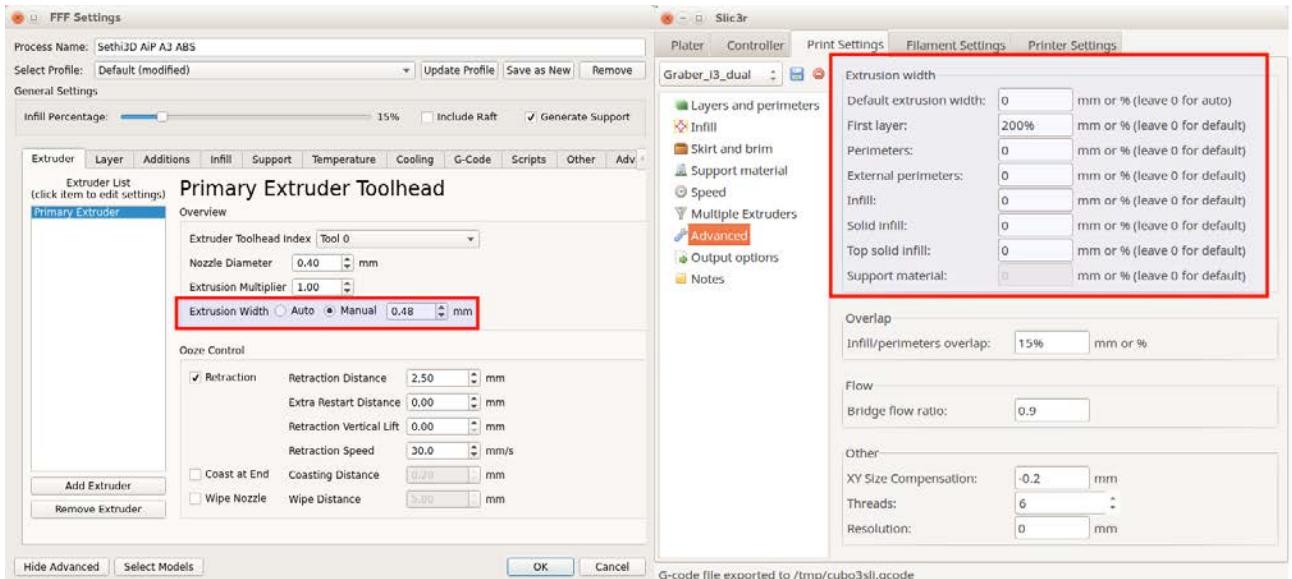
Top Layers

Bottom Thickness

Bottom Layers

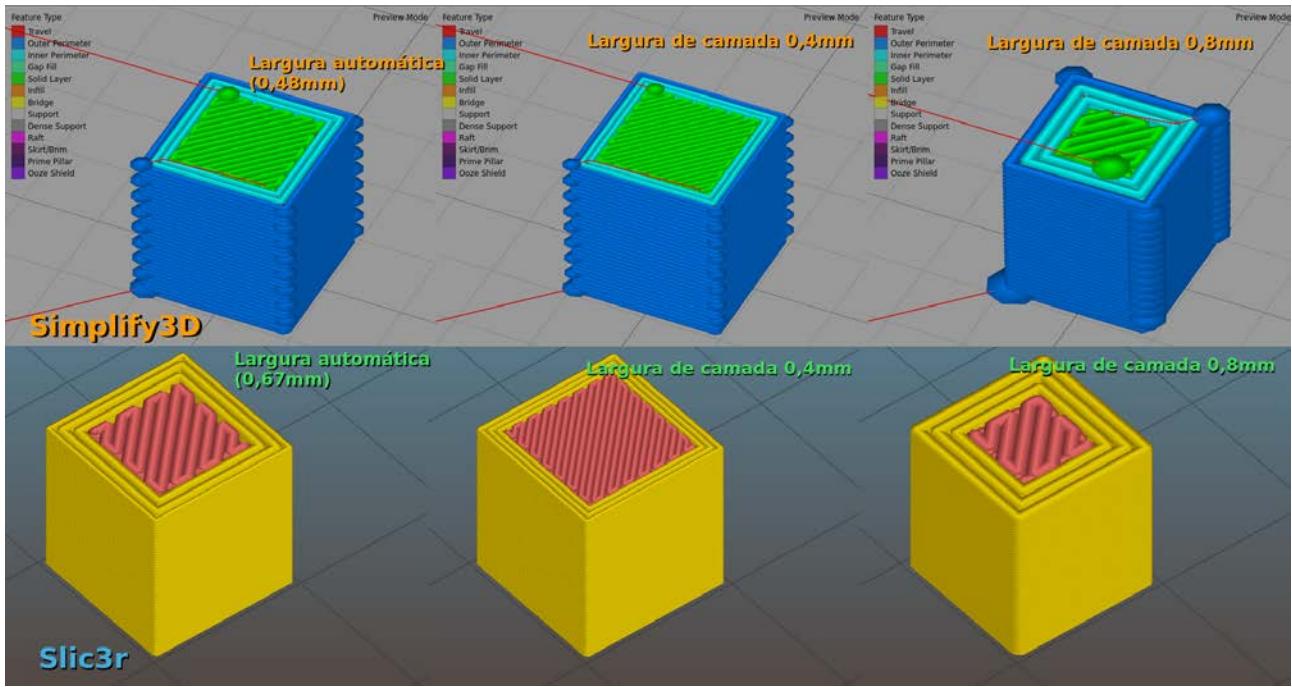
1.2	mm
3	
0.2	mm
0.8	mm
0.8	mm
8	
0.8	mm
8	

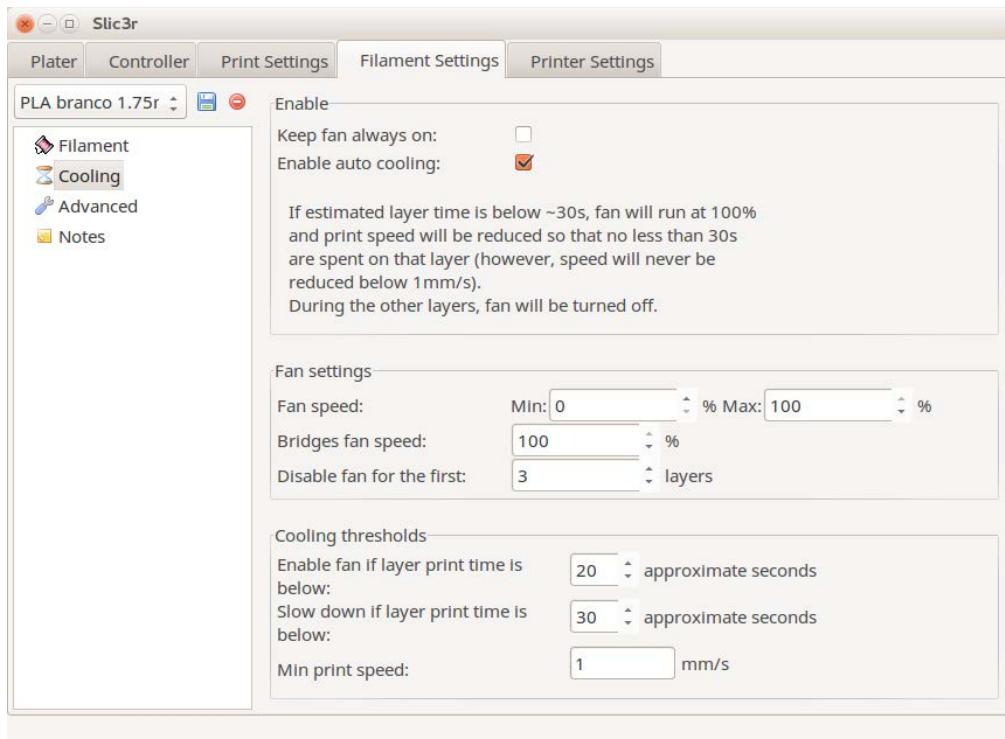


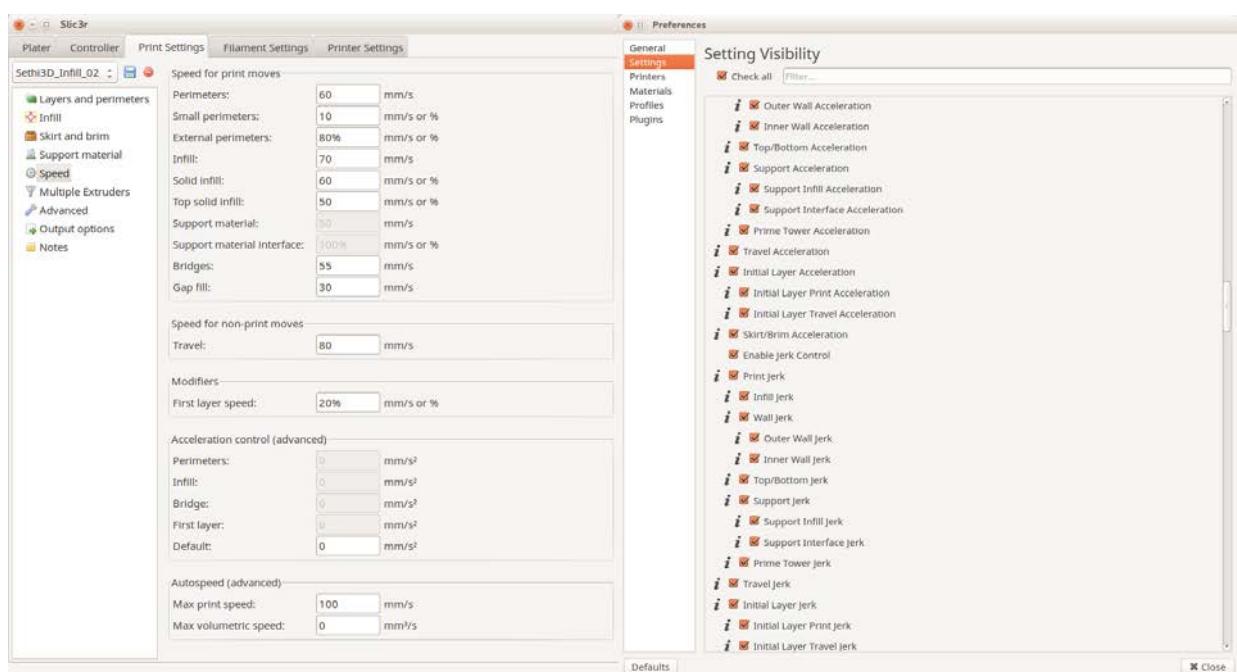


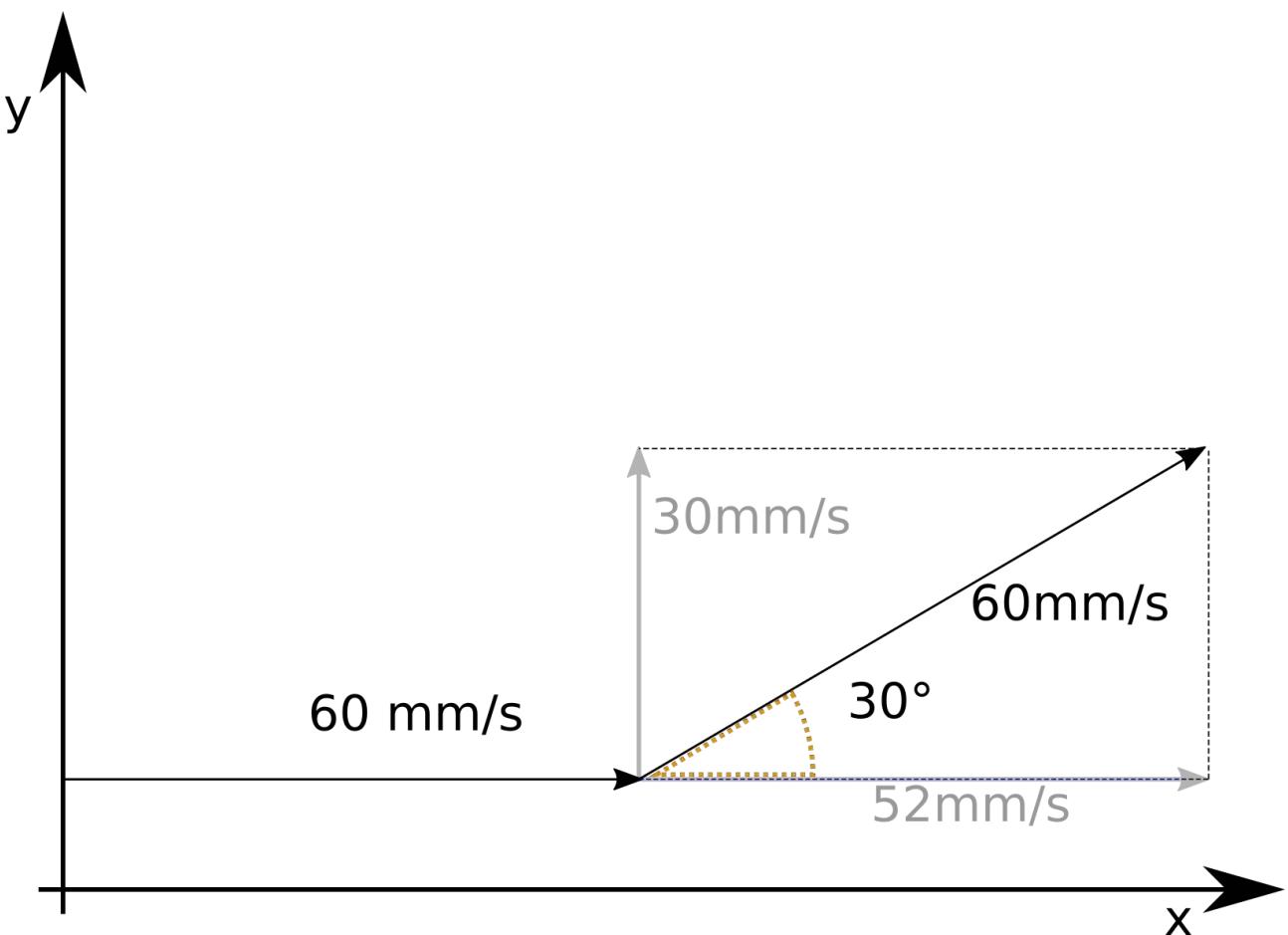
i

$$w = (\pi \cdot d^2 + (4-\pi) \cdot h^2) / (4h)$$











Information



Slic3r

Plater Controller Print Settings Filament Settings Printer Settings

Graber_I3_dual (r)

Layers and perimeters Infill Skirt and brim Support material Speed Multiple Extruders Advanced Output options Notes

Speed for print moves

Perimeters:	0	mm/s
Small perimeters:	0	mm/s or %
External perimeters:	0	mm/s or %
Infill:	0	mm/s
Solid infill:	0	mm/s or %
Top solid infill:	0	mm/s or %
Support material:	60	mm/s
Support material interface:	100%	mm/s or %
Bridges:	70	mm/s
Gap fill:	20	mm/s

Speed for non-print moves

Travel:	70	mm/s
---------	----	------

Modifiers

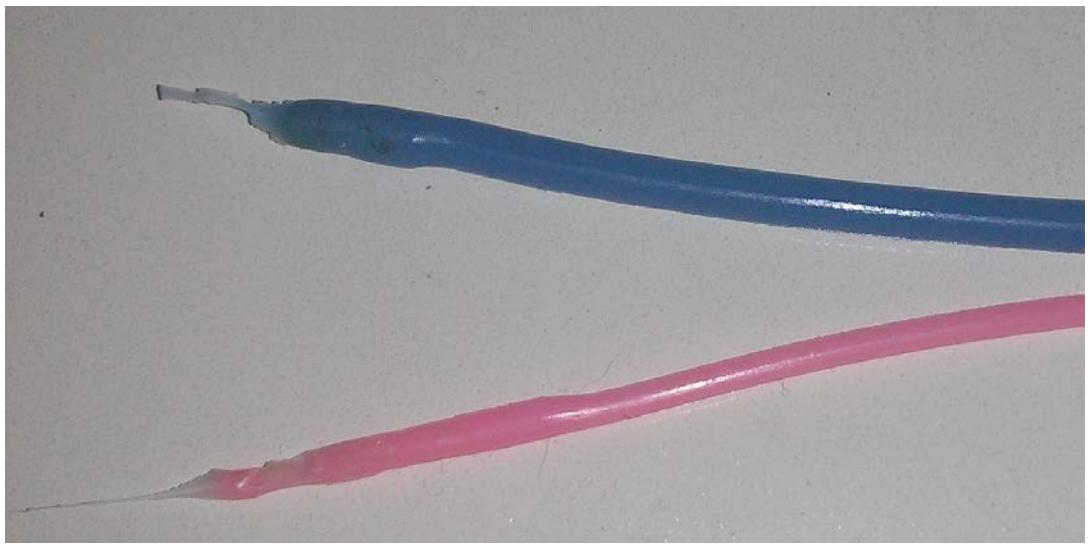
First layer speed:	30%	mm/s or %
--------------------	-----	-----------

Acceleration control (advanced)

Perimeters:	1000	mm/s ²
Infill:	1000	mm/s ²
Bridge:	1000	mm/s ²
First layer:	1000	mm/s ²
Default:	1000	mm/s ²

Autospeed (advanced)

Max print speed:	80	mm/s
Max volumetric speed:	0	mm ³ /s



KISSlicer v1.5 Release Linux64 (unregistered)

File Preferences All Models Help / Info

Models Models+Paths Paths Path Type Reset Open Save Path%

Style: sample style

Support: sample support

Printer: sample printer

Material: Ext1 - sample material (469 mm)

PRO

Material Name: sample material - in Ext 1

Diameter [mm]: 3

Temperature [C] for the <TEMP> token:

- Main: 230
- First Layer: 235
- Keep-Warm: 180
- Bed: 120

Destring [mm]	Fan / Cool	Flow Adjust
Prime: 1.25	Loops: 100	Flow Tweak: 1
Suck: 1.25	Inside: 0	Coef Calc: 0
Wipe: 10	Cool: 100	Min [mm ³ /s]: 0.01
▲vP: 15	Fan Z [mm]: 0	Max [mm ³ /s]: 10
▲vS: 15	Min Layer [s]: 10	Cost Calc: 0
Min Jump[mm]: 1	Other: 0	Z-lift [mm]: 0
Trigger [mm]: 100	\$ / cm ³ : 0	

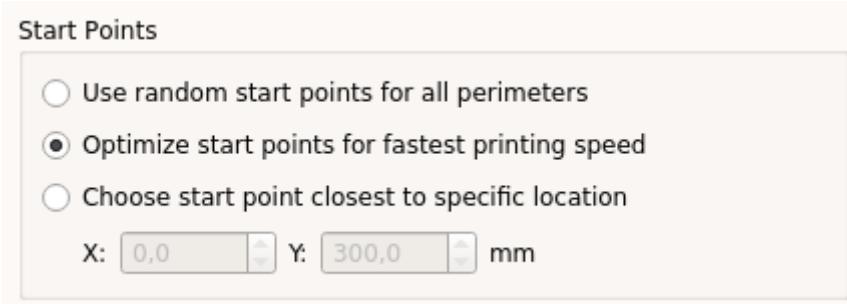
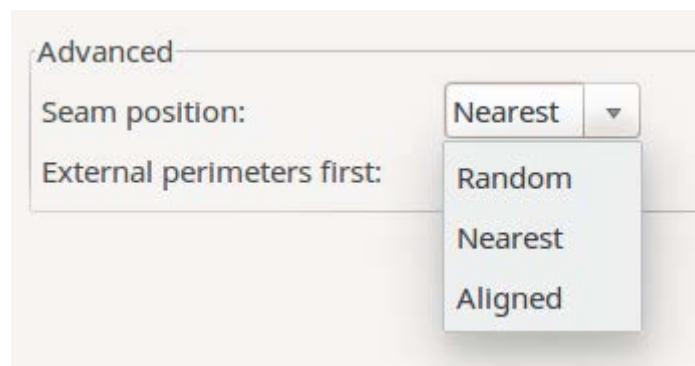
Settings Level: Expert

Perim: 37.50 [mm/s]
Loops: 42.50 [mm/s]
Solid: 55.00 [mm/s]
Sparse: 57.50 [mm/s]

Buttons:

- Copy Material
- Center
- Delete Material





Z Seam Alignment
Starting point of each path in a layer. When paths in consecutive layers start at the same point a vertical seam may show on the print. When aligning these near a user specified location, the seam is easiest to remove. When placed randomly the inaccuracies at the paths' start will be less noticeable. When taking the shortest path the print will be quicker.

Fill Gaps Between Walls

Horizontal Expansion

Z Seam Alignment

Z Seam X

Z Seam Y

Ignore Small Z Gaps

Everywhere

0 mm

User Specified

User Specified

Shortest

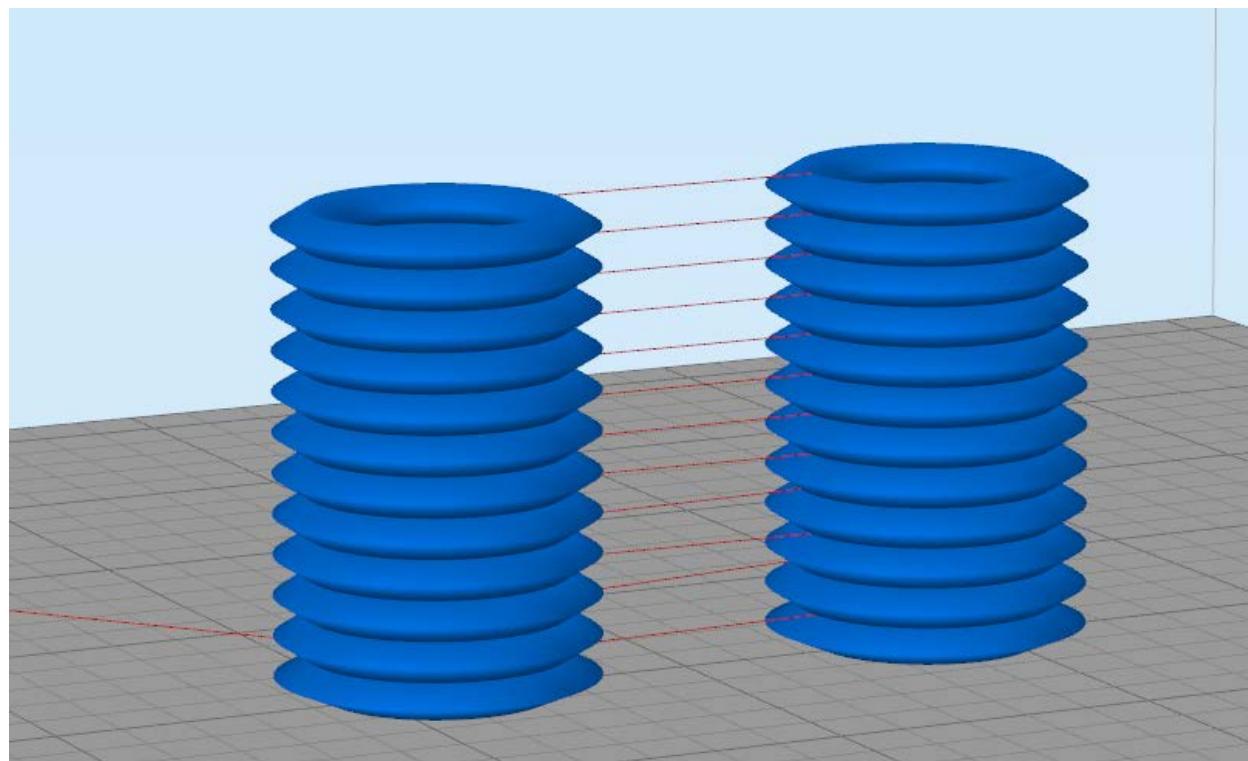
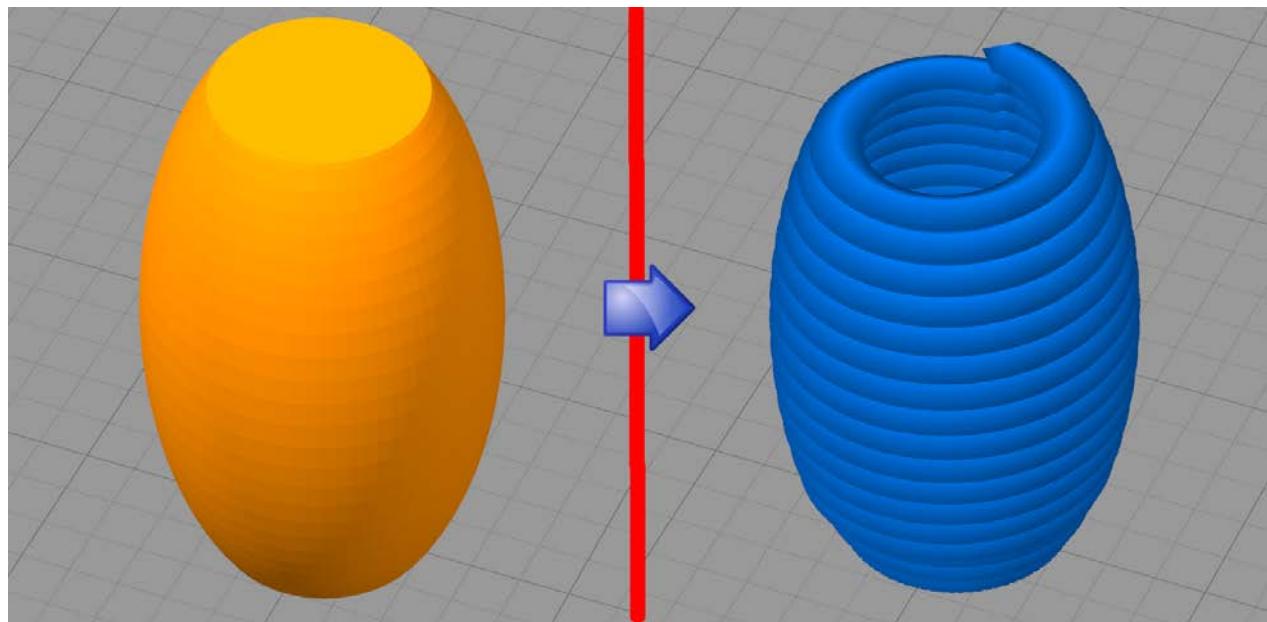
Random



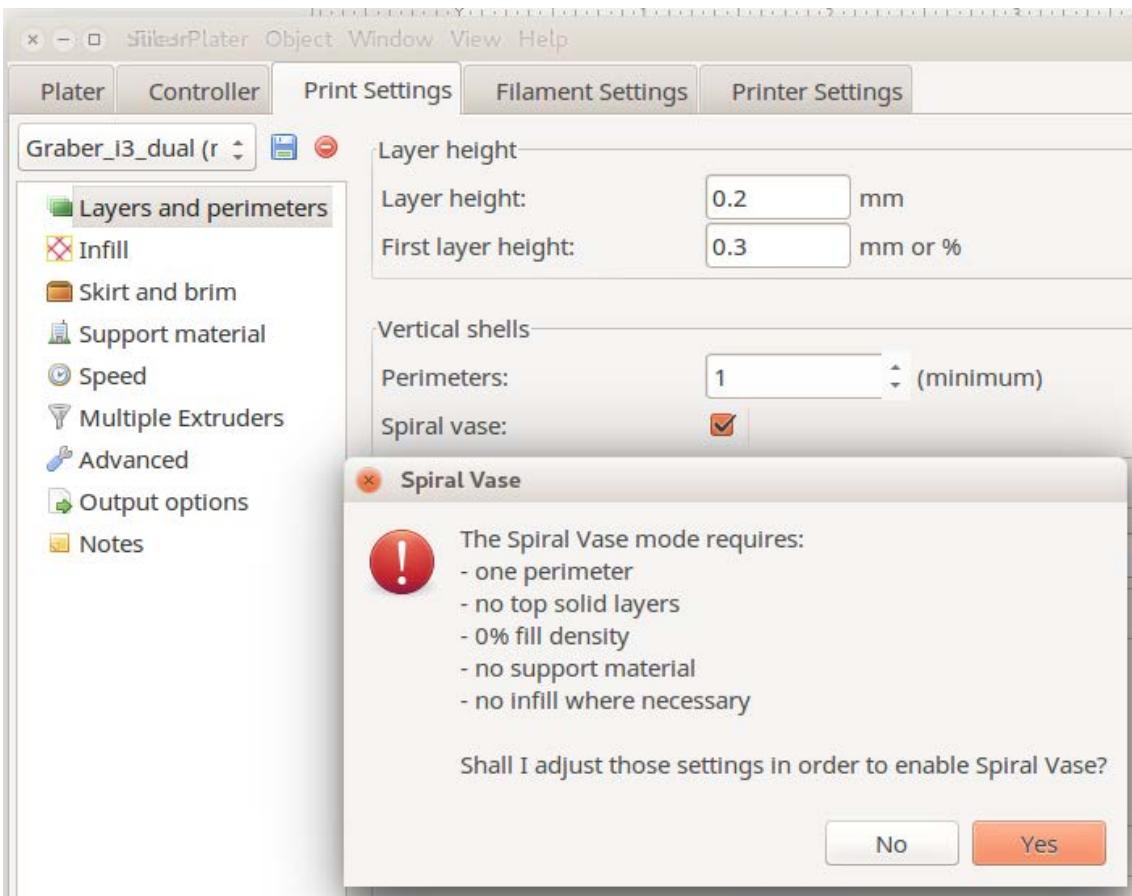
Ready to Save to Removable Drive

Save to Removable Drive





The Spiral Vase option can only be used when printing a single object.



General Settings

Infill Percentage: 0%

Extruder Layer Additions Infill Support Temperature Cooling G-Code Scripts

Layer Settings

Primary Extruder Primary Extruder

Primary Layer Height 0,3000 mm

Top Solid Layers 0

Bottom Solid Layers 3

Outline/Perimeter Shells 1

Outline Direction: Inside-Out Outside-In

Print islands sequentially without optimization

Single outline corkscrew printing mode (vase mode)

First Layer Settings

First Layer Height 100

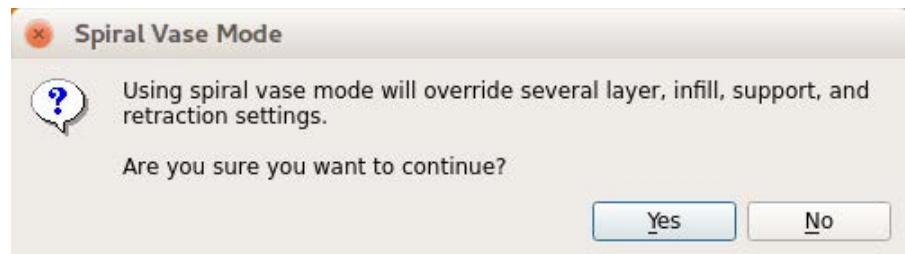
First Layer Width 150

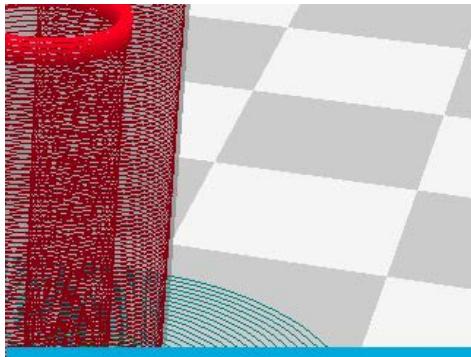
First Layer Speed 20

Start Points

Use random start points
 Optimize start points for
 Choose start point closes

X: 0,0 Y: 300





Spiralize Outer Contour

Spiralize smooths out the Z move of the outer edge. This will create a steady Z increase over the whole print. This feature turns a solid model into a single walled print with a solid bottom. This feature used to be called Joris in older versions.

Affects

- Wall Line Count
- Travel Speed
- Travel Acceleration
- Travel Jerk

Print Setup

[Recommended](#)[Custom](#)[Alternate Mesh Removal](#)

Special Modes

[Support Mesh](#)[Anti Overhang Mesh](#)[Surface Mode](#)

Normal

[Spiralize Outer Contour](#)

Experimental

[Enable Draft Shield](#)[Make Overhang Printable](#)[Enable Coasting](#)[Extra Skin Wall Count](#)

0

[Alternate Skin Rotation](#)

Ready to Save to Removable Drive

[Save to Removable Drive](#)



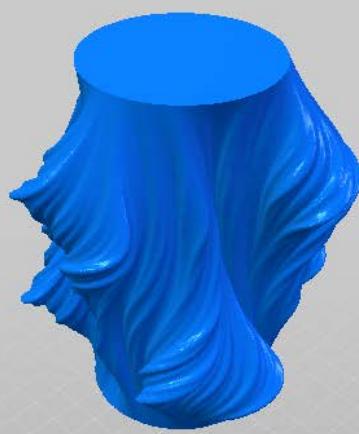
Julia Vase #011 - Heatwave

by virtox, published Aug 1, 2013

Exit



DOWNLOAD ALL FILES



	Like	1532
	Collect	1867
	Comment	40
	I Made One	159
	Watch	33
	Share	

Thing Apps Enabled

View All Apps

Quality (slower slicing)

- Extra perimeters if needed:
- Avoid crossing perimeters:
- Detect thin walls:
- Detect bridging perimeters:

Thin Wall Behavior

- Only use perimeters for thin walls
- Allow gap fill when necessary

Allowed perimeter overlap %

Ooze Control Behavior

- Only retract when crossing open spaces
- Force retraction between layers
- Minimum travel for retraction mm
- Perform retraction during wipe movement
- Only wipe extruder for outer-most perimeters

Tool Change Retraction

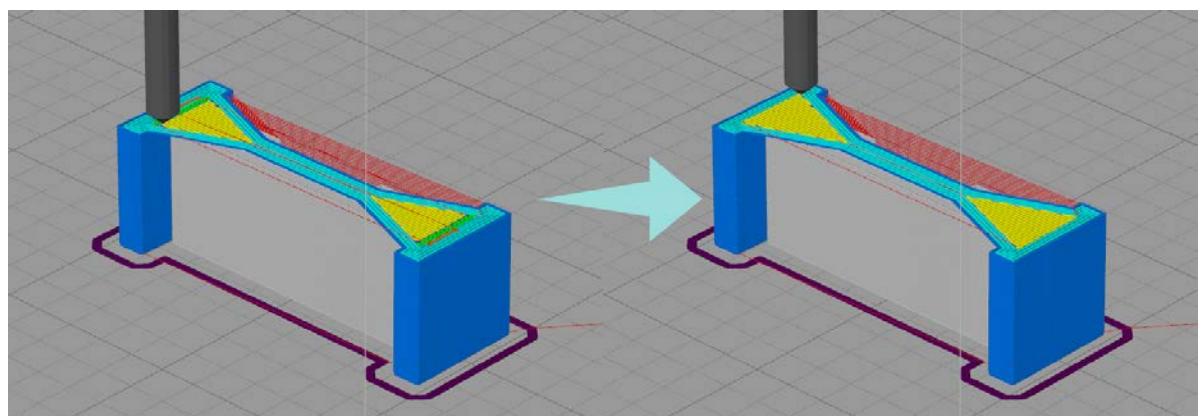
- Tool change retraction distance mm
- Tool change extra restart distance mm
- Tool change retraction speed mm/min

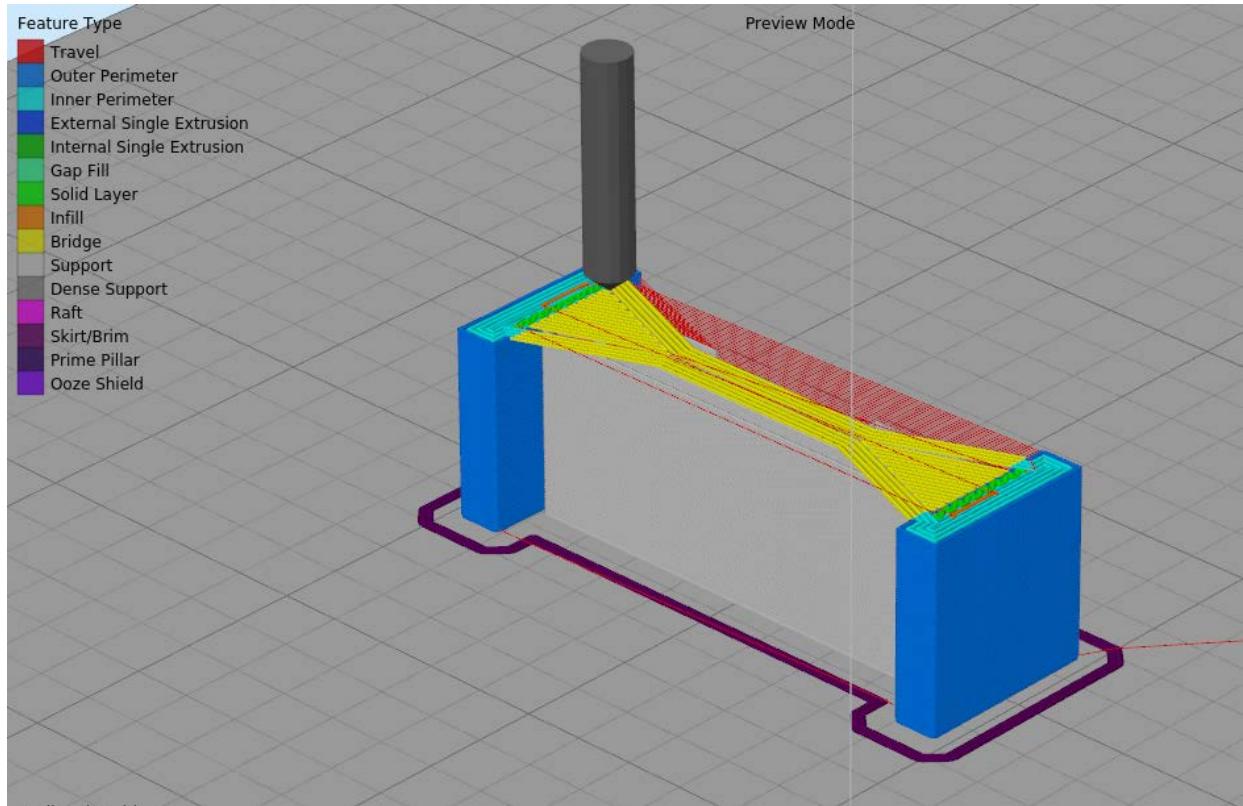
Ooze Control

<input checked="" type="checkbox"/> Retraction	Retraction Distance	2,50	mm
	Extra Restart Distance	0,00	mm
	Retraction Vertical Lift	0,00	mm
	Retraction Speed	1800,0	mm/min
<input type="checkbox"/> Coast at End	Coasting Distance	0,20	mm
<input type="checkbox"/> Wipe Nozzle	Wipe Distance	5,00	mm

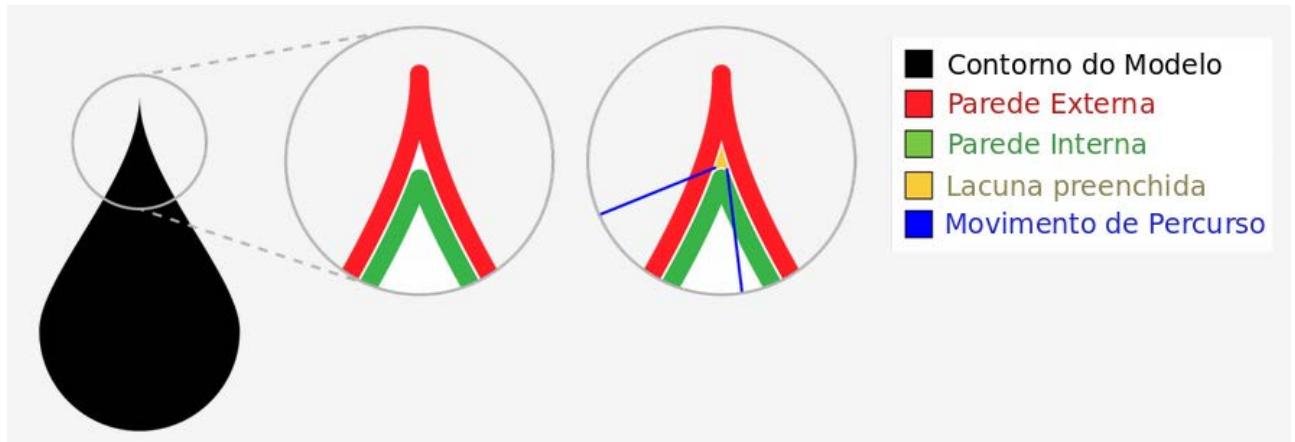
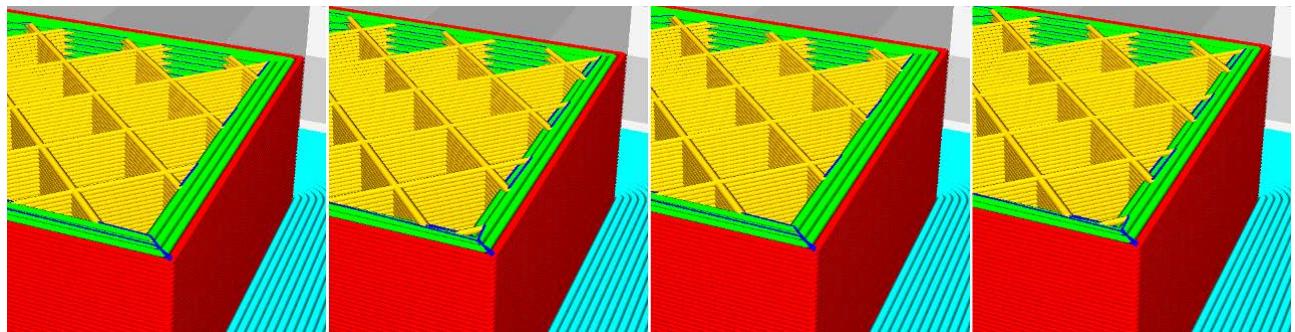
Bridging

Unsupported area threshold	50,0	sq mm
Extra inflation distance	0,00	mm
Bridging extrusion multiplier	85	%
Bridging speed multiplier	120	%
<input type="checkbox"/> Use fixed bridging infill angle	0	deg
<input type="checkbox"/> Apply bridging settings to perimeters		





Outer Wall Inset	<input type="text" value="0"/> mm	Penetração da Parede Externa	<input type="text" value="0"/> mm
Outer Before Inner Walls	<input type="checkbox"/>	Paredes exteriores...tes das interiores	<input type="checkbox"/>
Alternate Extra Wall	<input type="checkbox"/>	Alternar Parede Adicional	<input type="checkbox"/>
Compensate Wall Overlaps	<input checked="" type="checkbox"/>	Compensar Sobreposições de Parede	<input checked="" type="checkbox"/>
Compensate Outer Wall Overlaps	<input checked="" type="checkbox"/>	Compensar Sobre... Parede Externa	<input checked="" type="checkbox"/>
Compensate Inner Wall Overlaps	<input checked="" type="checkbox"/>	Compensar Sobre... Parede Interna	<input checked="" type="checkbox"/>
Fill Gaps Between Walls	<input type="checkbox"/>	Preenche Lacunas Entre Paredes	<input type="checkbox"/>
Print Thin Walls	<input type="checkbox"/>	Imprimir Paredes Finas	<input type="checkbox"/>
	<input type="button" value="Everywhere"/>		<input type="button" value="Em todos os l..."/>



- Contorno do Modelo
- Parede Externa
- Parede Interna
- Lacuna preenchida
- Movimento de Percurso

Enable Retraction
Retract at Layer Change
<i>Retraction Distance</i>
Retraction Speed
Retraction Retract Speed
Retraction Prime Speed
Retraction Extra Prime Amount
Retraction Minimum Travel
Maximum Retraction Count
Minimum Extrusion Distance Window
Nozzle Switch Retraction Distance
Nozzle Switch Retraction Speed
Nozzle Switch Retract Speed
Nozzle Switch Prime Speed

<input checked="" type="checkbox"/>
4.5 mm
25 mm/s
25 mm/s
25 mm/s
0 mm³
0.8 mm
90
4.5 mm
16 mm
20 mm/s
20 mm/s
20 mm/s

Habilitar Retração
Retrai em Mudança de Camada
<i>Distância da Retração</i>
Velocidade de Retração
Velocidade de Re...ento de Retração
Velocidade de Avanço da Retração
Quantidade Adicio...vanço da Retração
Percorso Mínimo para Retração
Contagem de Retrações Máxima
Janela de Distância de Extrusão Mínima
Distância de Retração da Troca de Bico
Velocidade de Retr...o da Troca do Bico
Velocidade de Ret...a da Troca de Bico
Velocidade de Ava... da Troca de Bico

<input checked="" type="checkbox"/>
4.5 mm
25 mm/s
25 mm/s
25 mm/s
0 mm³
0.8 mm
90
4.5 mm
16 mm
20 mm/s
20 mm/s
20 mm/s

Percorso	
Modo de Combing	<input type="button" value="▼"/>
Retrair Antes da Parede Externa	<input type="button" value="▼"/>
Evitar Partes Impressas nas Viagens	<input checked="" type="checkbox"/>
Distância de Desvio de Percurso	<input type="button" value="▼"/>
X Inicial da Camada	0.625 mm
Y Inicial da Camada	0.0 mm
Salto Z Ao Retrair	0.0 mm

Tudo	<input type="button" value="▼"/>
<input type="checkbox"/>	
<input checked="" type="checkbox"/>	
0.625 mm	<input type="button" value="▼"/>
0.0 mm	<input type="button" value="▼"/>
0.0 mm	<input type="button" value="▼"/>

Travel	
Combing Mode	<input type="button" value="▼"/>
Retract Before Outer Wall	<input type="button" value="▼"/>
Avoid Printed Parts When Traveling	<input checked="" type="checkbox"/>
Travel Avoid Distance	<input type="button" value="▼"/>
Layer Start X	0.625 mm
Layer Start Y	0.0 mm
Z Hop When Retracted	0.0 mm

All	<input type="button" value="▼"/>
<input type="checkbox"/>	
<input checked="" type="checkbox"/>	
0.625 mm	<input type="button" value="▼"/>
0.0 mm	<input type="button" value="▼"/>
0.0 mm	<input type="button" value="▼"/>

$$v = \frac{\pi d^2 L}{4}$$

$$v = \frac{3,1416 \times 1,7^2 \times 0,2}{4} = 0,454 \text{ mm}^3$$

Enable Coasting

Coasting Volume

Minimum Volume Before Coasting

Coasting Speed

0.064	mm³
0.8	mm³
90	%

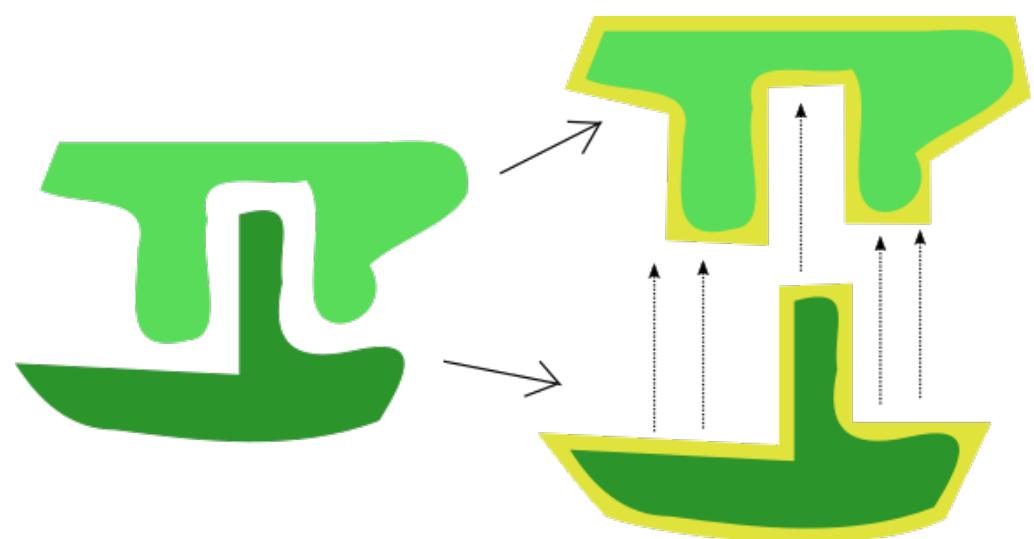
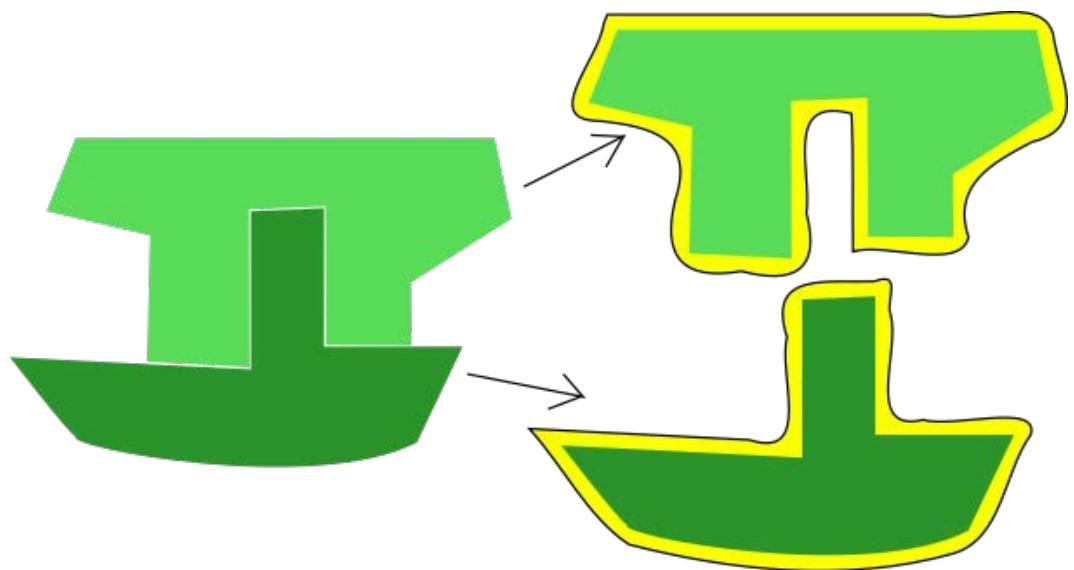
Habilitar Desengrenagem

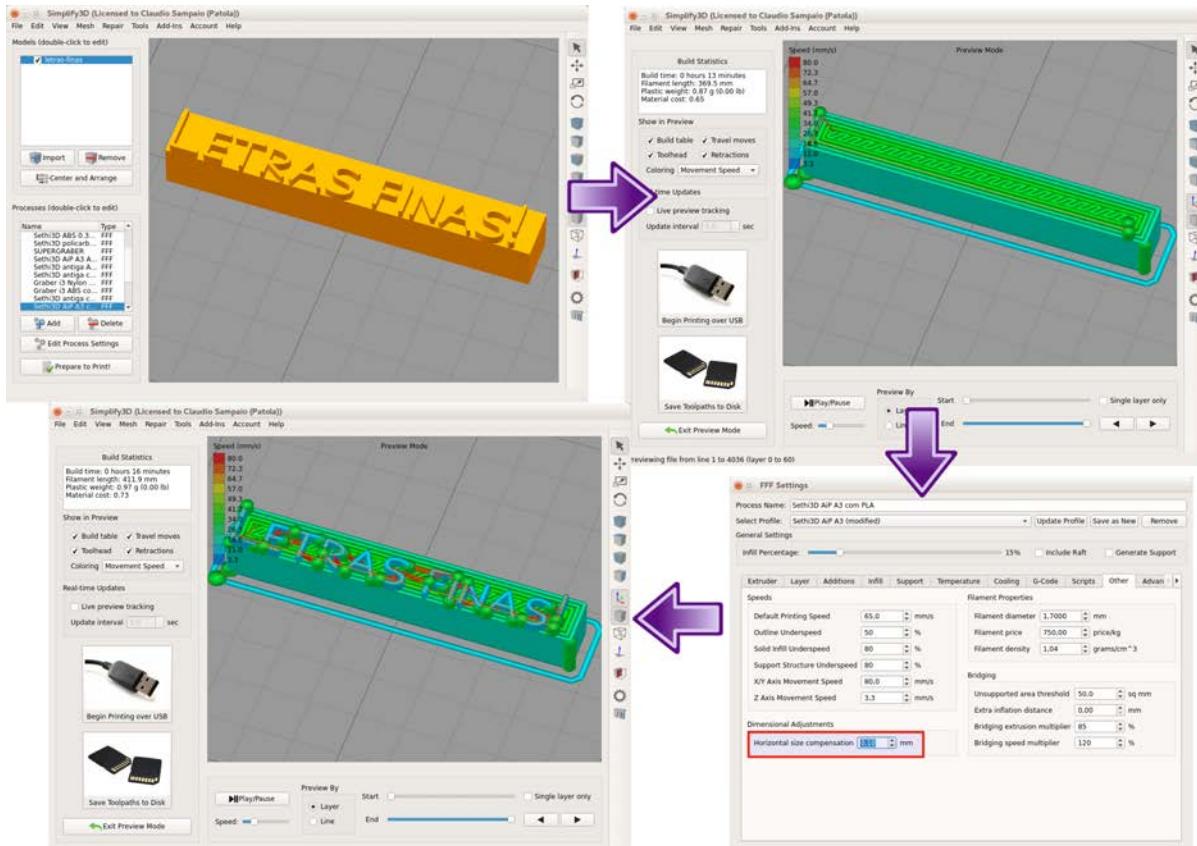
Volume de Desengrenagem

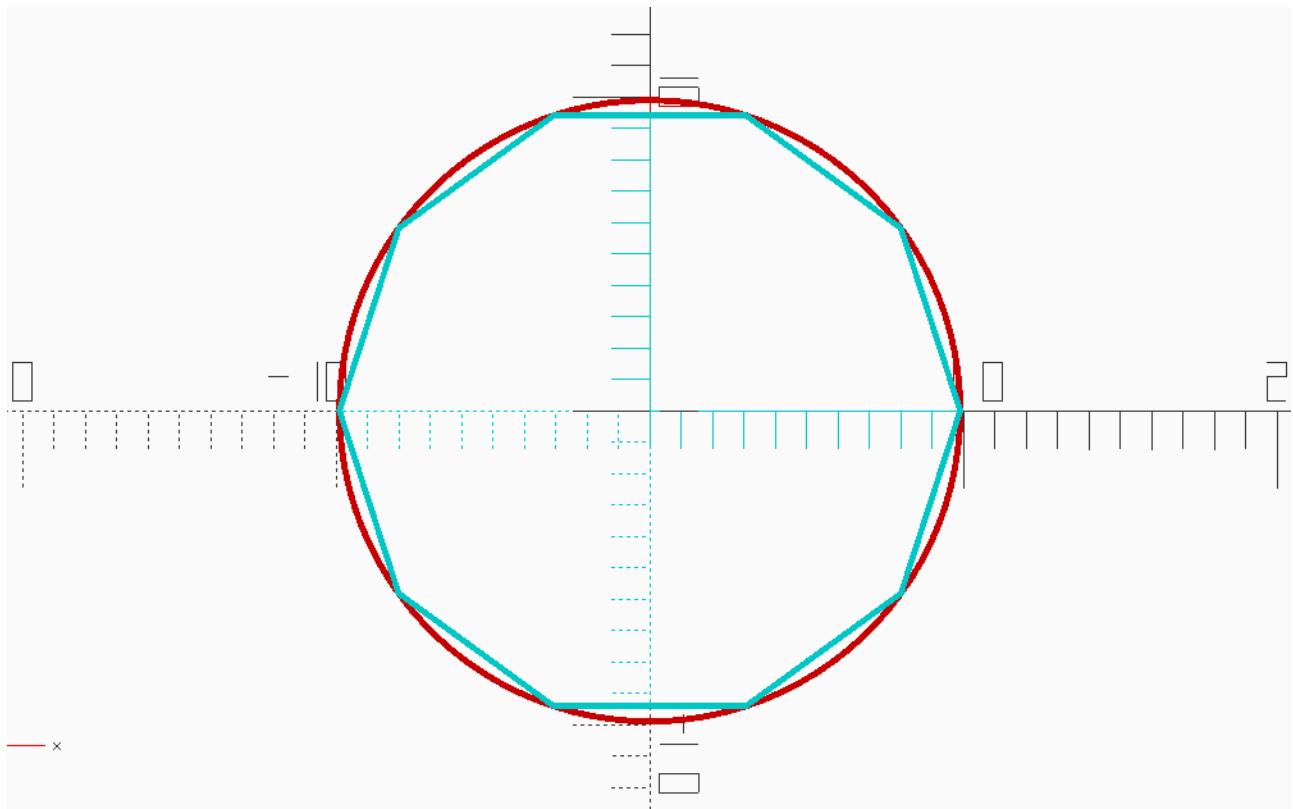
Volume Mínimo A...a Desengrenagem

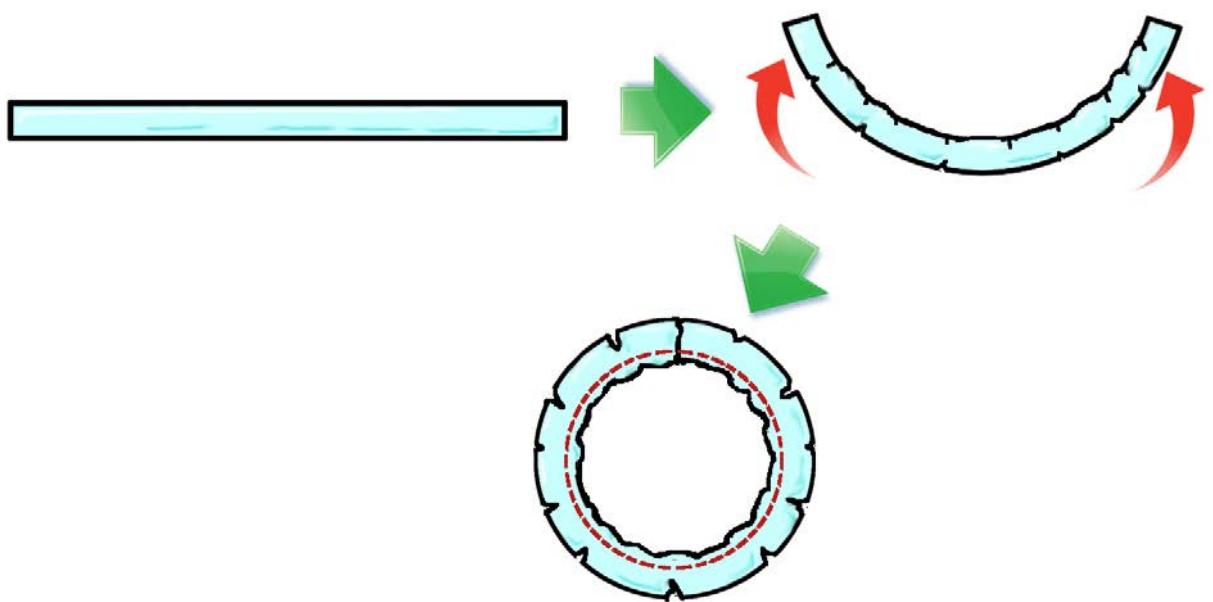
Velocidade de Desengrenagem

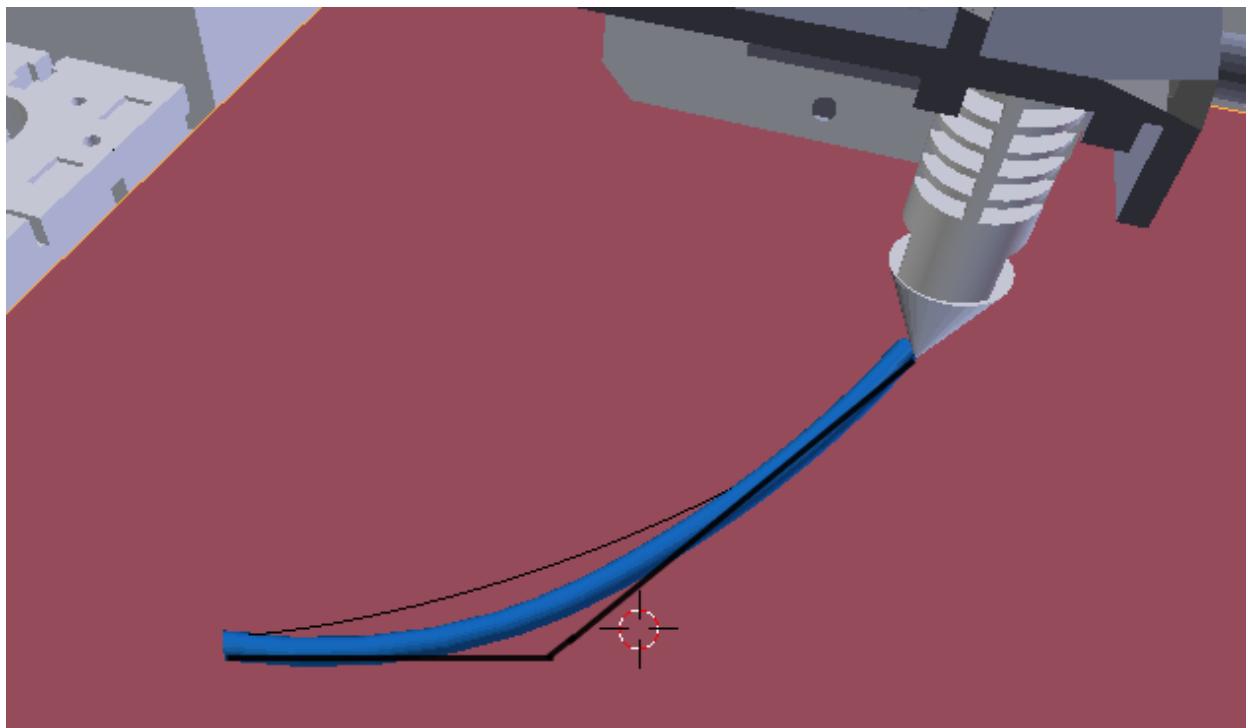
0.064	mm³
0.8	mm³
90	%











62 63

65 65.x

62 63

62 63

62 63

62 63

```
<?php
include "functions.php";

$debug          = false;
$lookahead      = 5;    //
$pos_error      = 0.1; // absolute
$alignment_error = 0.01; // absolute
$extrusion_error = 0.15; // percent
$start          = microtime(true);

$options = getopt('f:o:');

$gcode  = str_replace("\r","",file_get_contents($options['f']));
$gcode  = explode("\n", $gcode);
$gcode  = SplFixedArray::fromArray($gcode);

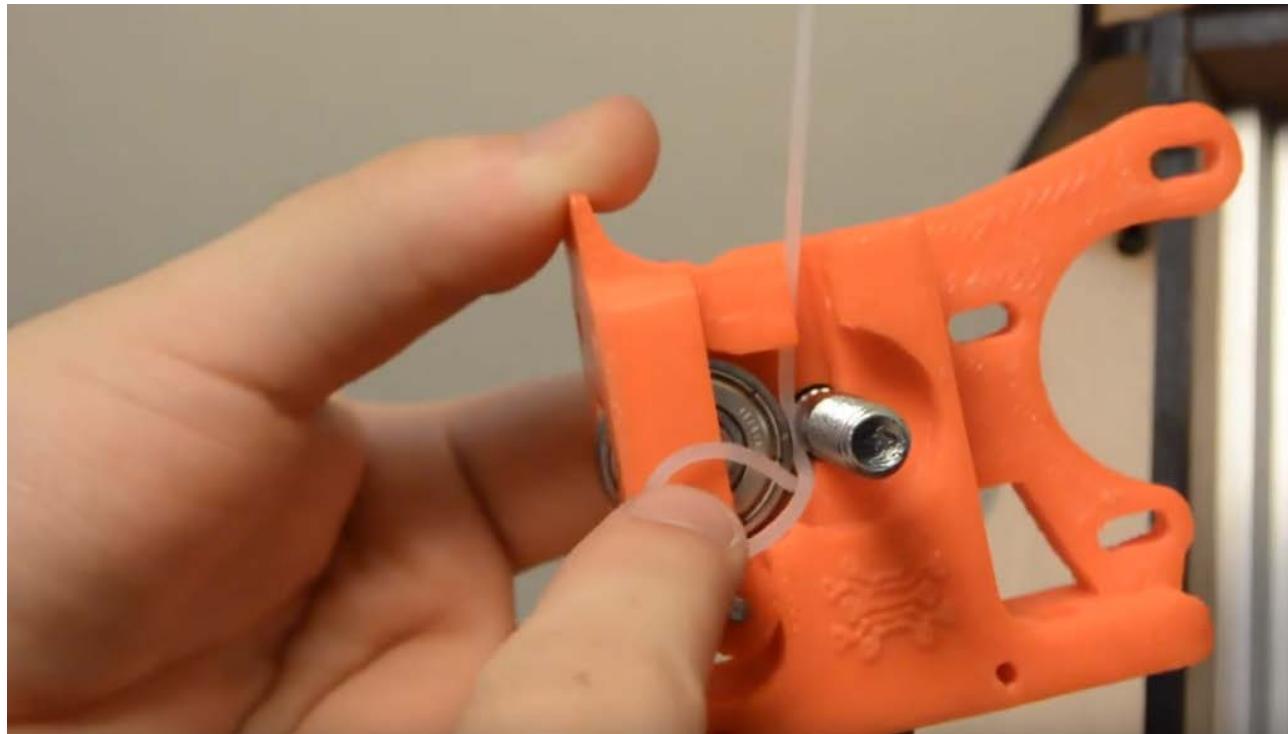
$processed = processGcode($gcode);

file_put_contents($options['o'], $processed);
```

```
php cli.php -f "entrada.gcode" -o "saida.gcode"
```

G2 G3

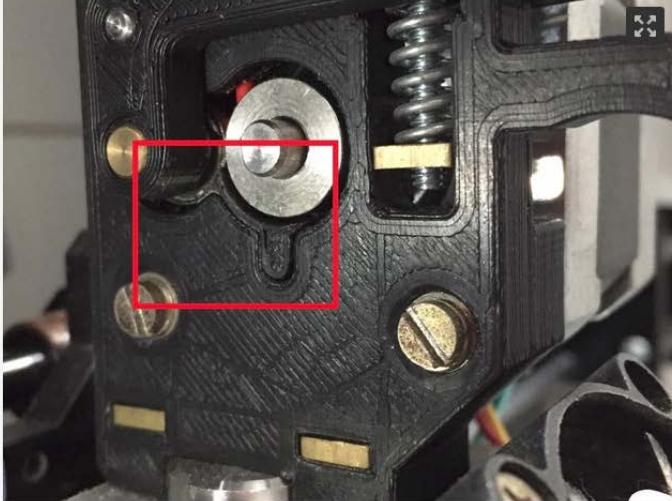








 **Antigap para uso de filamento flexível no extrusor da Sethi3D AIP3 1,75mm**
by 3DLab Impressoes, published Sep 16, 2015

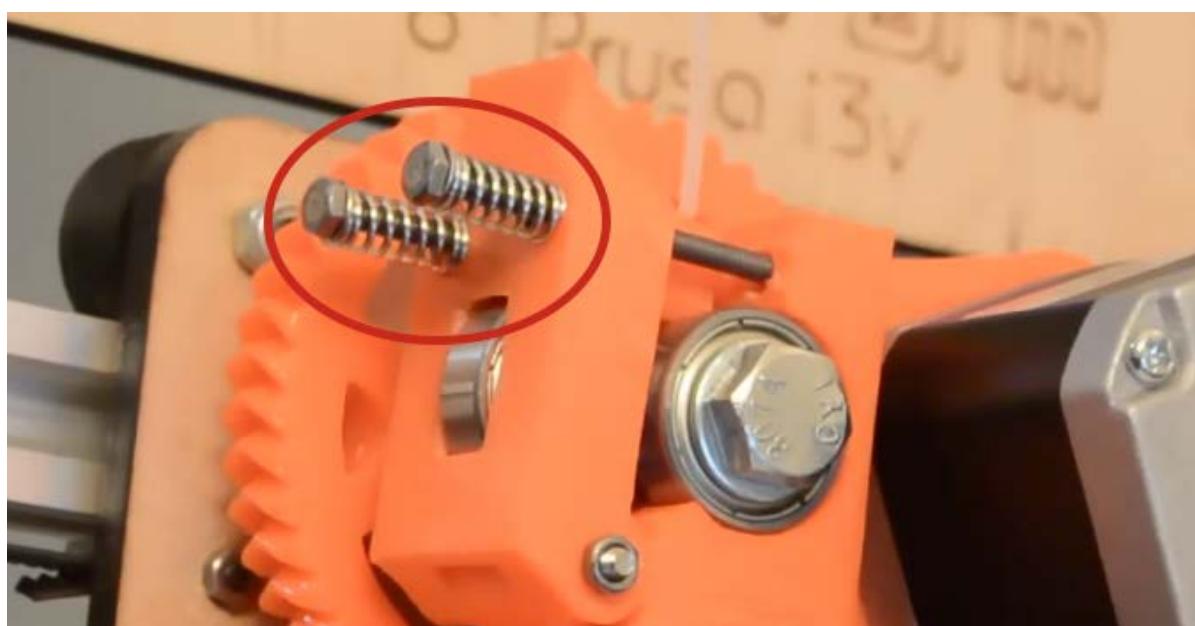
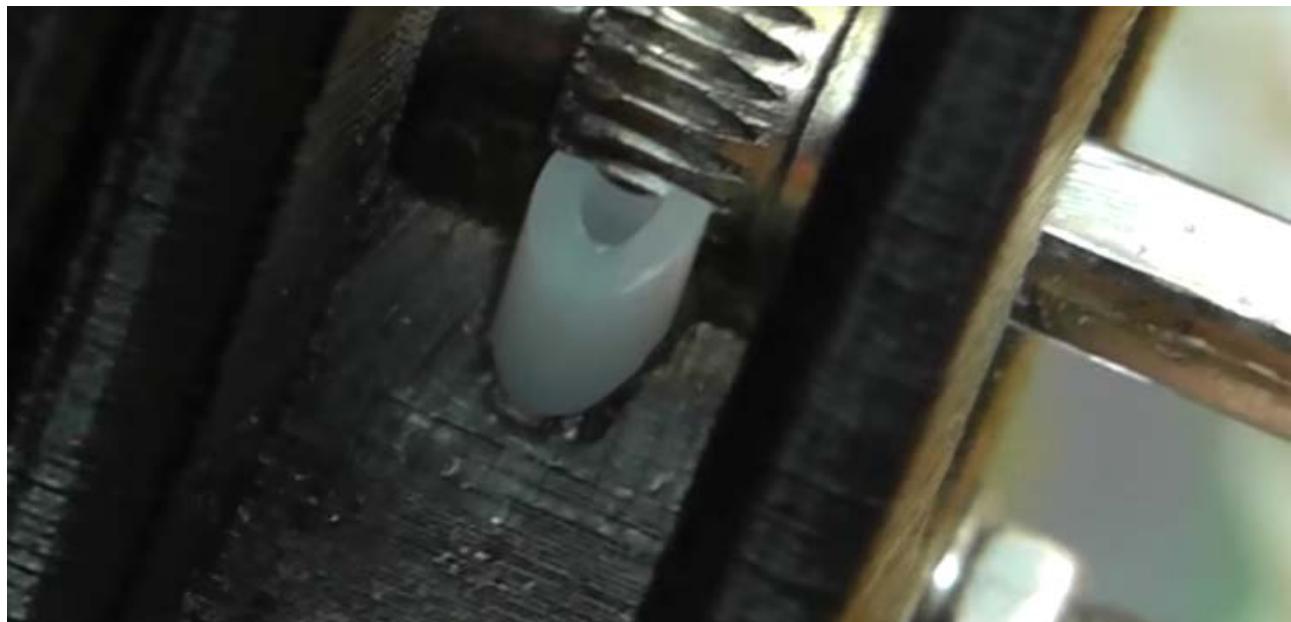


[DOWNLOAD ALL FILES](#)

	Like	6
	Collect	9
	Comment	0
	I Made One	0
	Watch	0
	Remix It	0
	Share	

Thing Apps Enabled

- Order This Printed
- View All Apps





FILAFLEX TENSOR

by tomillo, published Feb 21, 2015



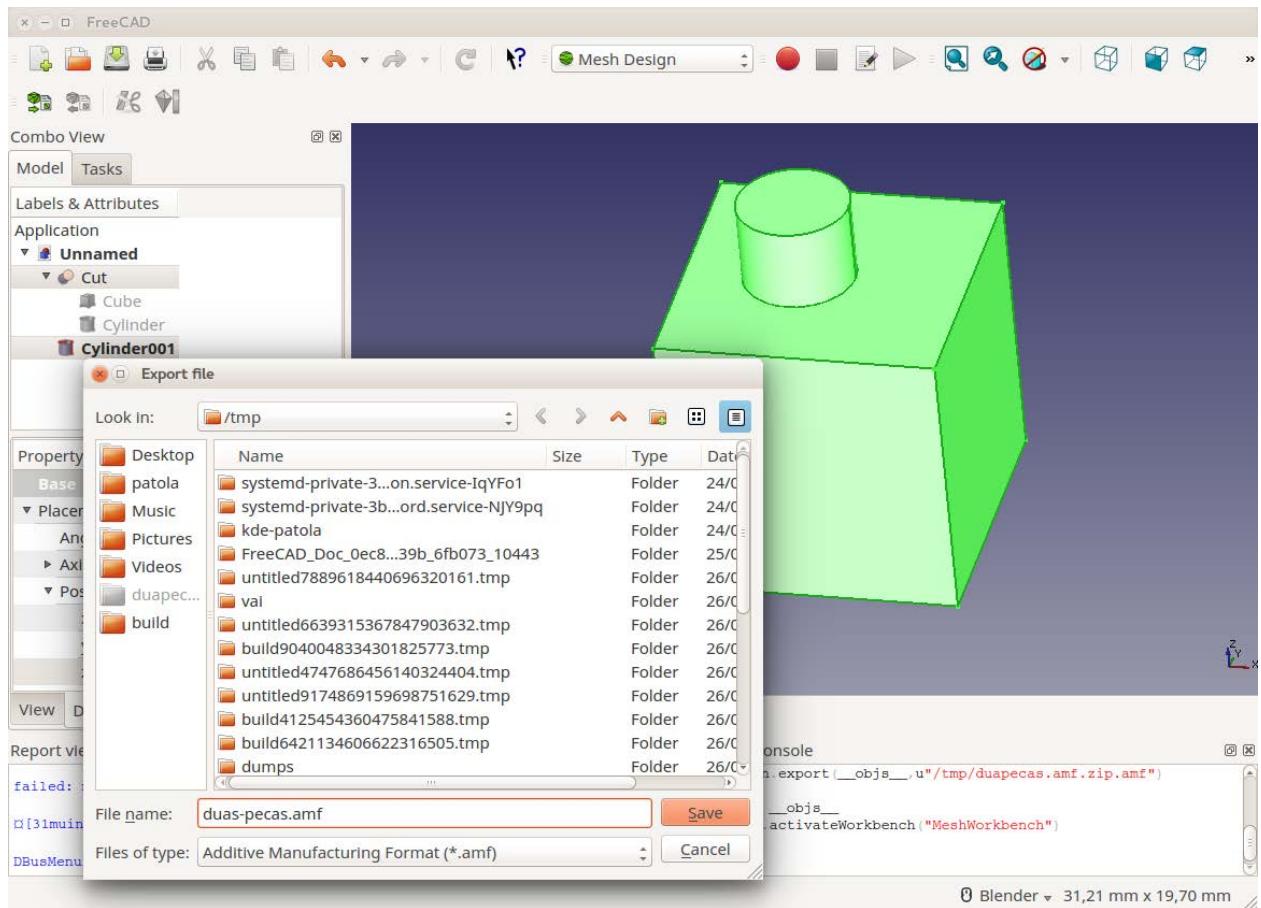
DOWNLOAD ALL FILES

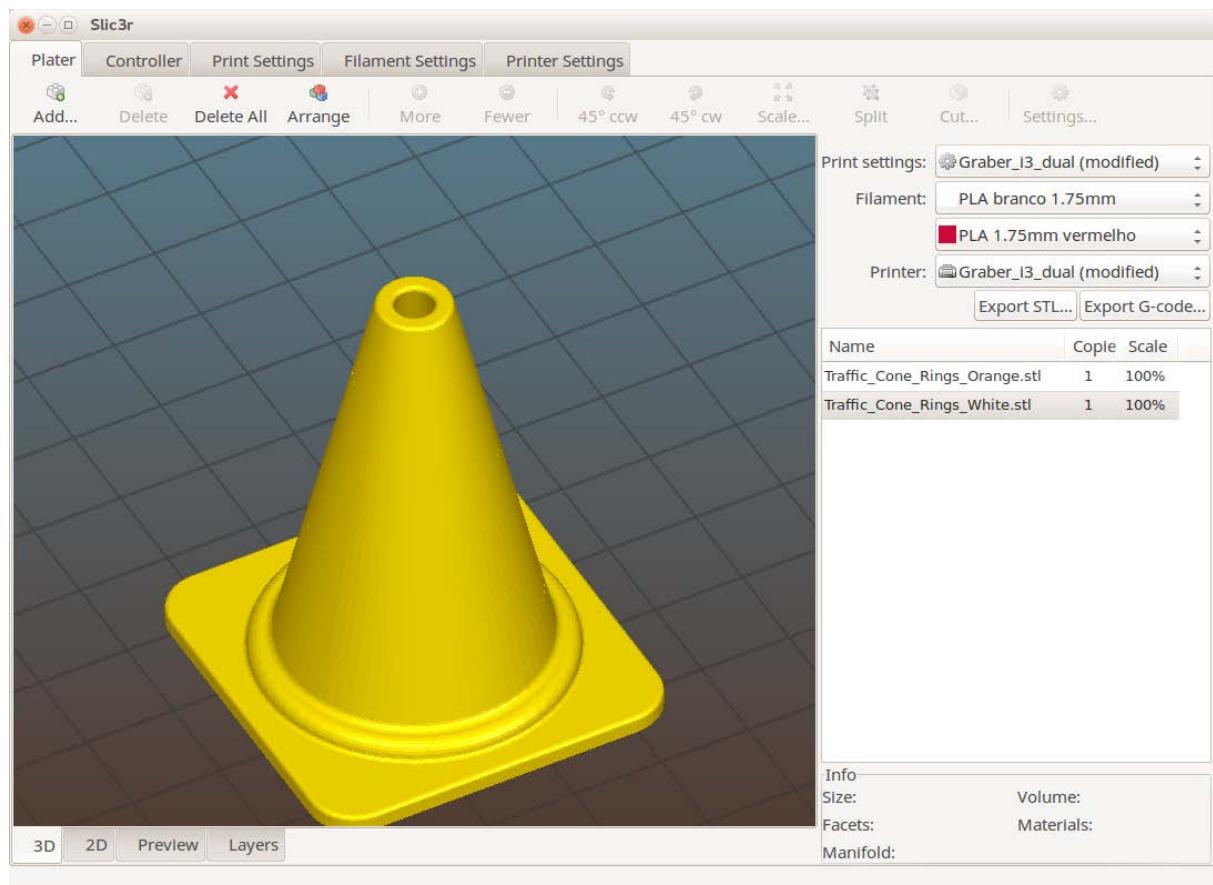
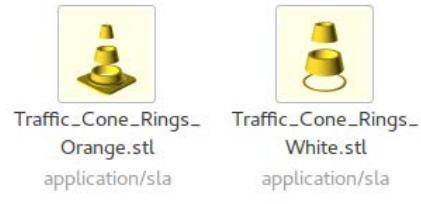
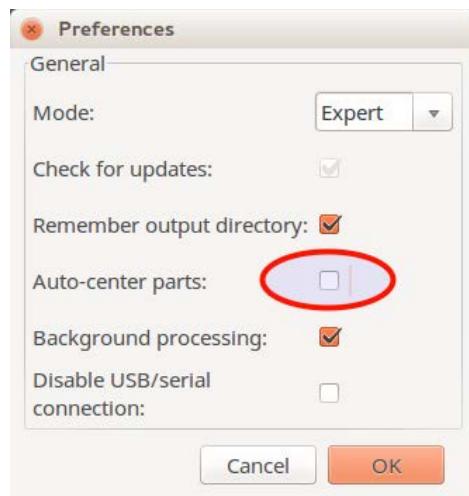
	Like	47
	Collect	66
	Comment	6
	I Made One	2
	Watch	2
	Remix It	0
	Share	

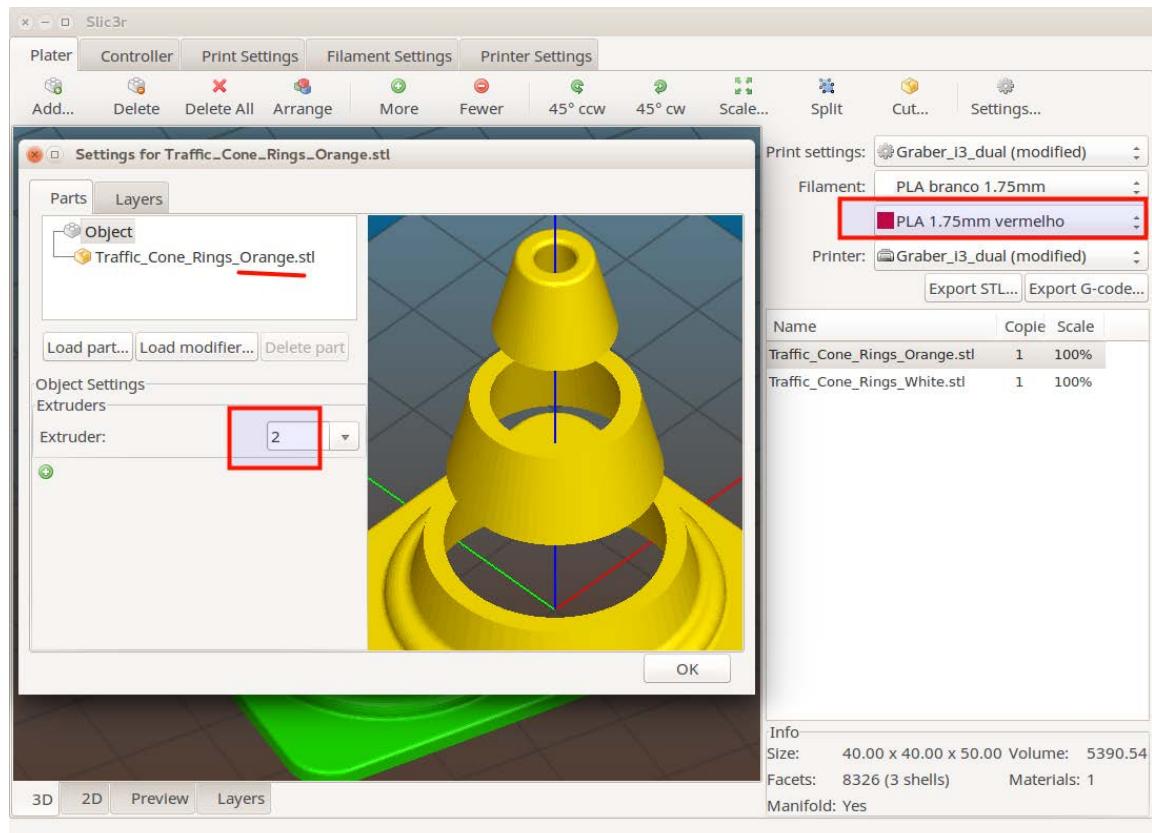
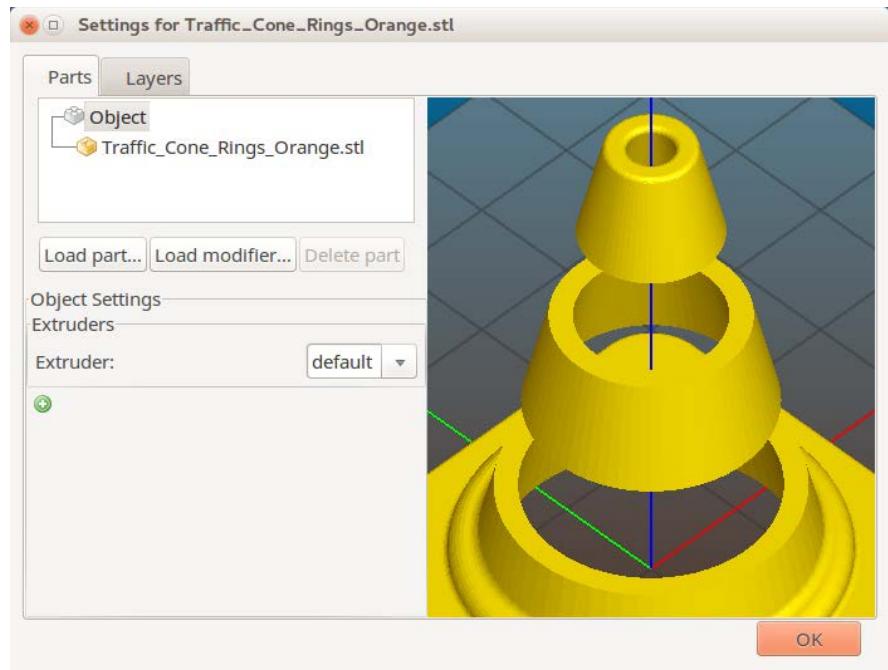
Thing Apps Enabled

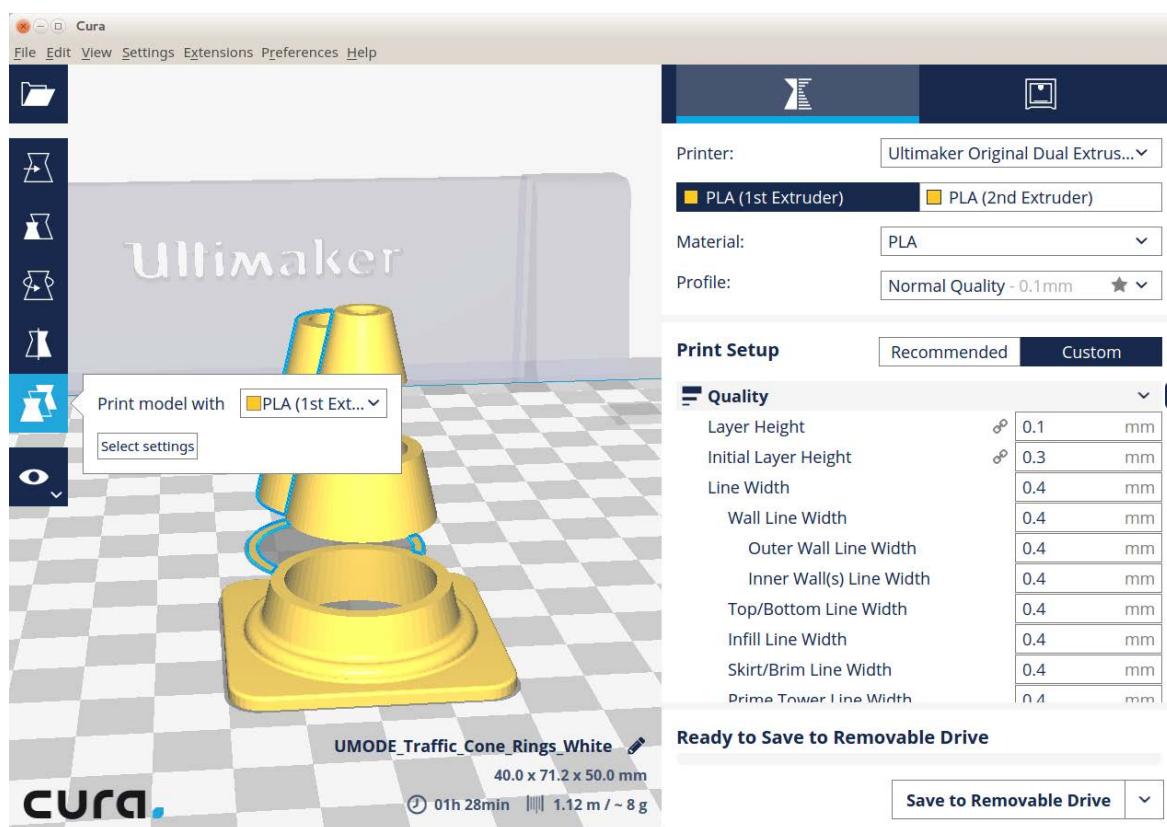
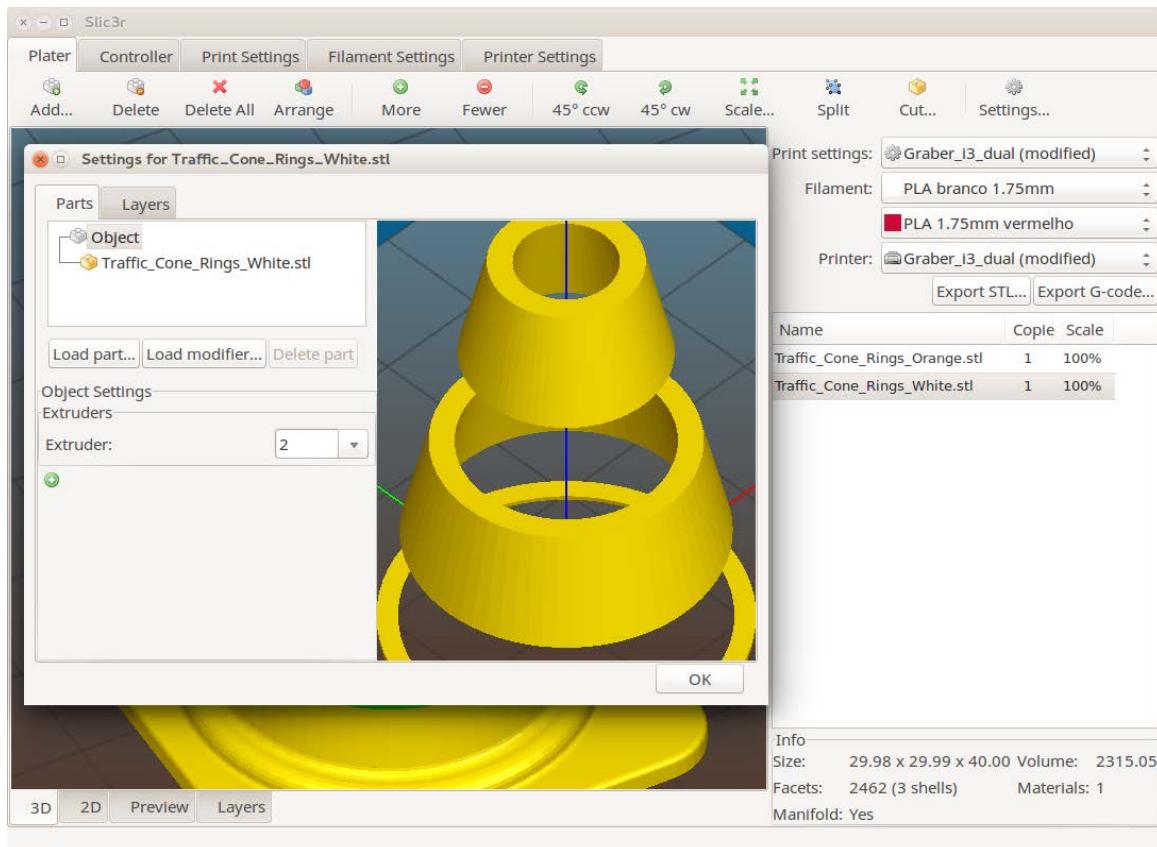
View All Apps

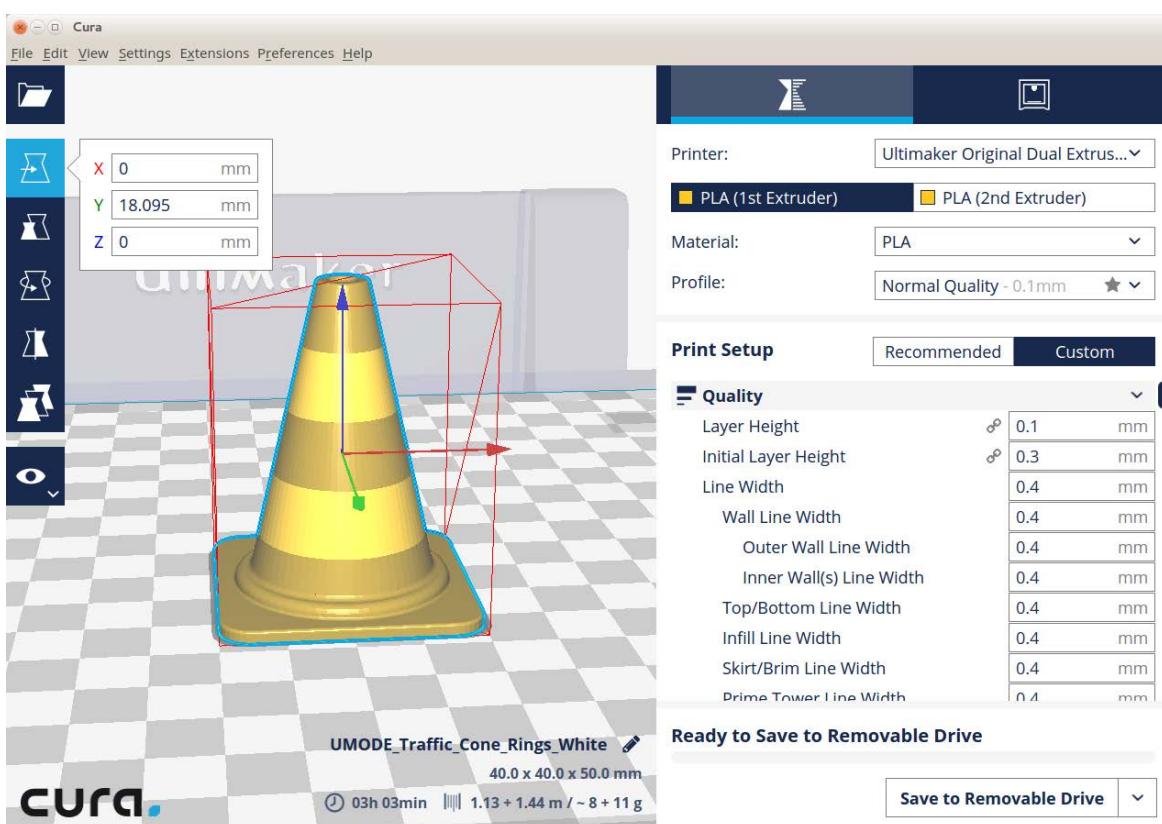
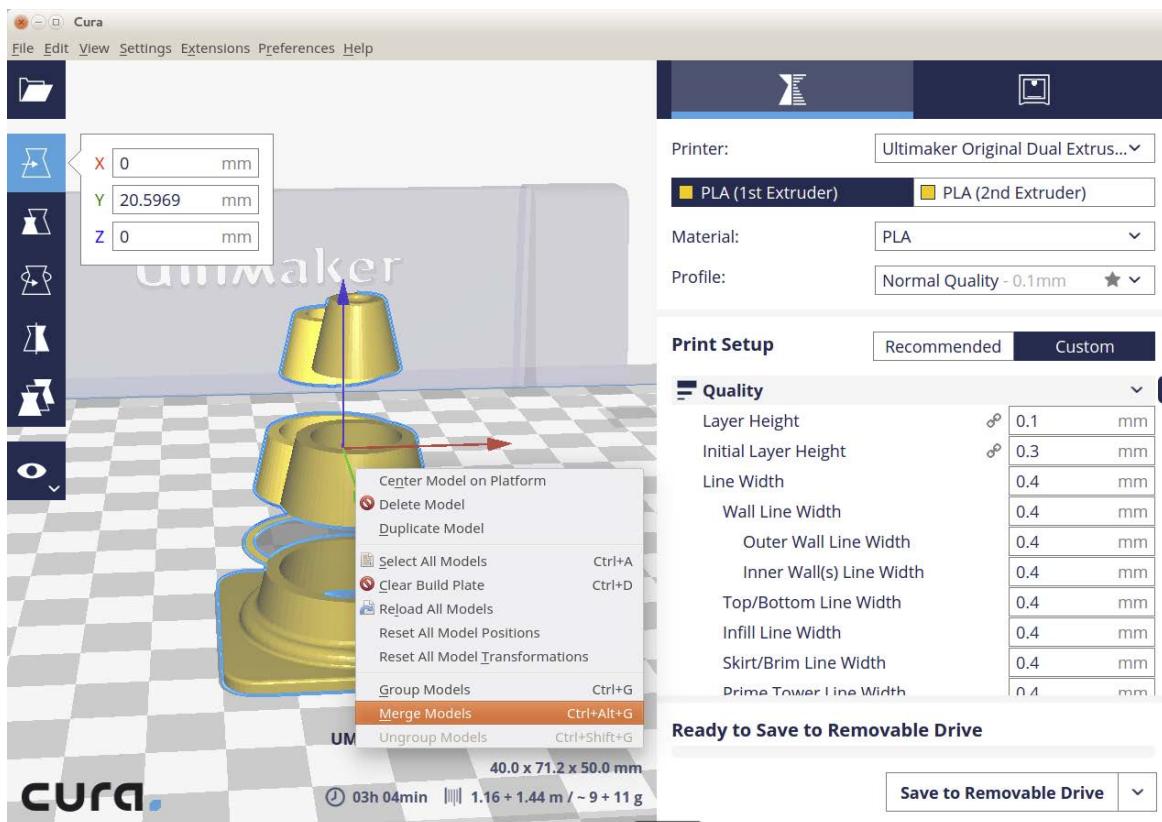


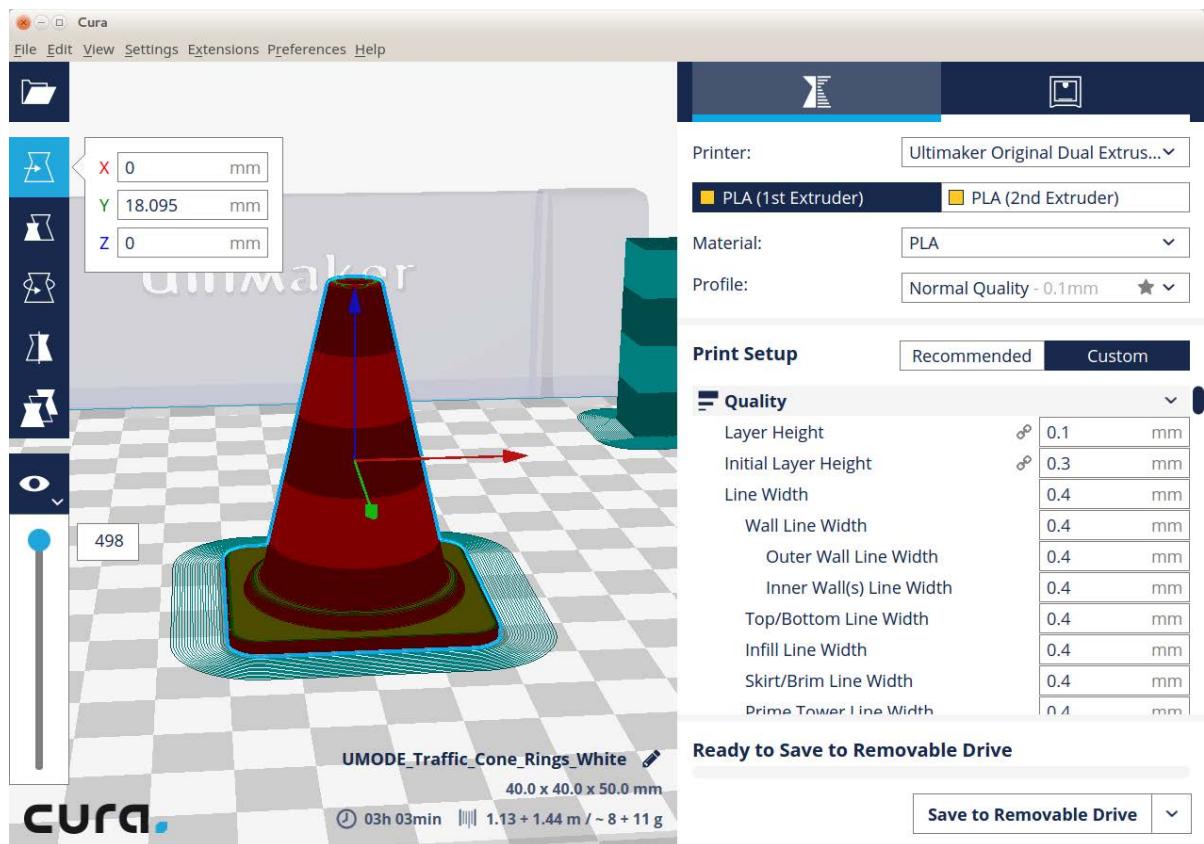


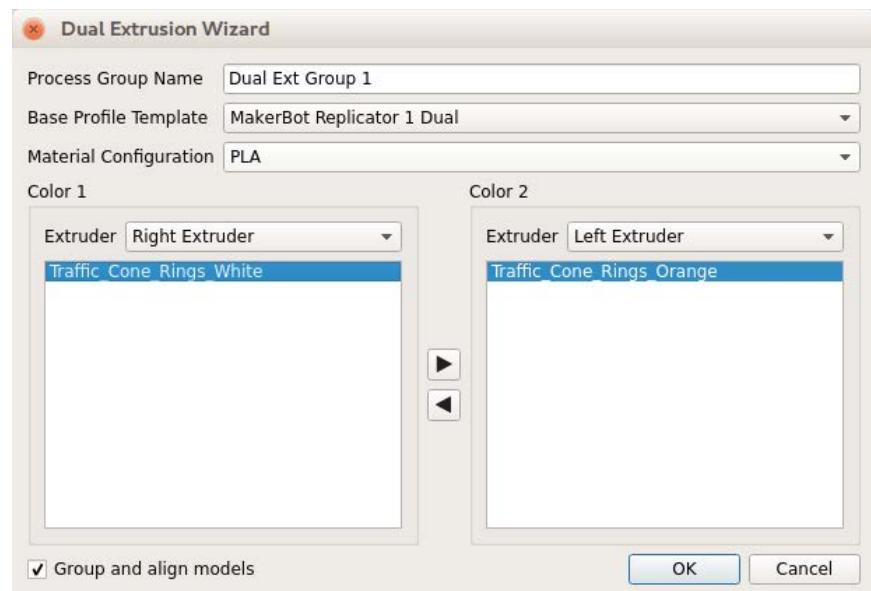
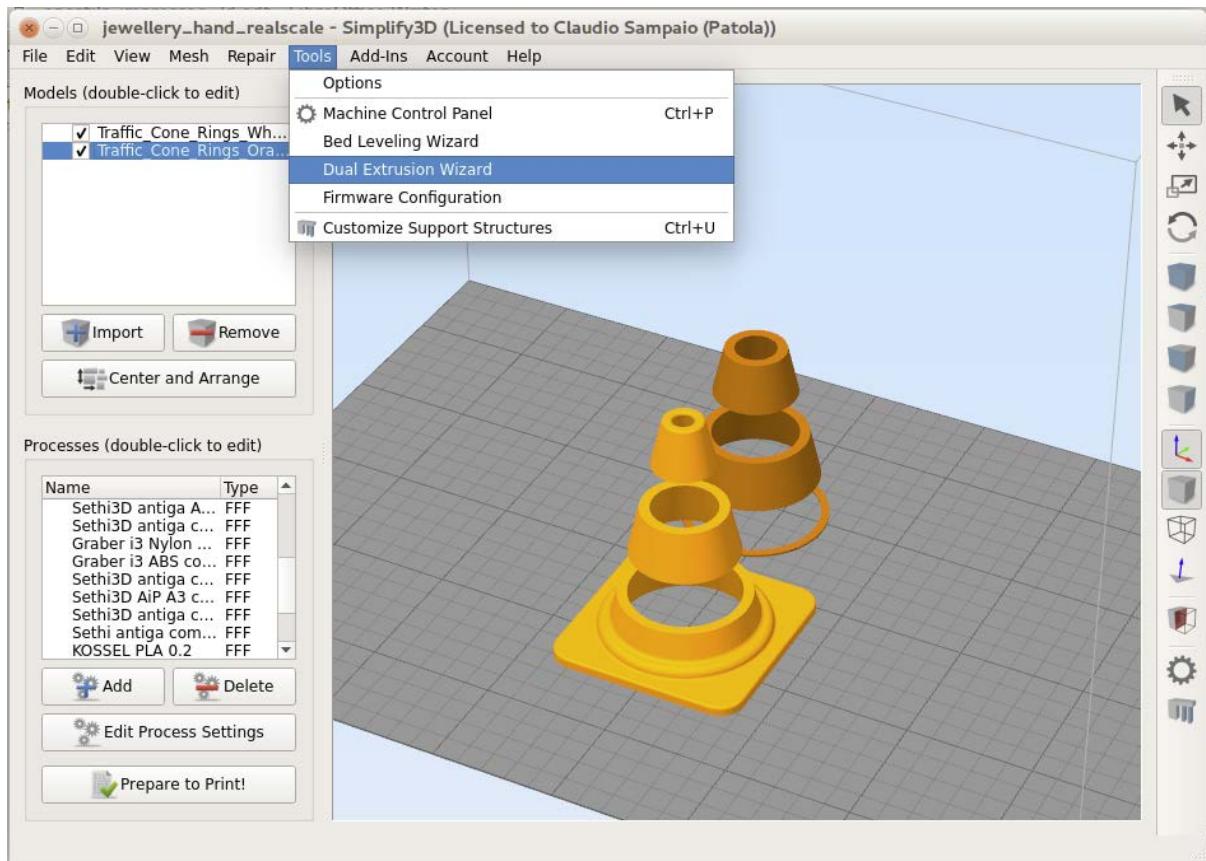


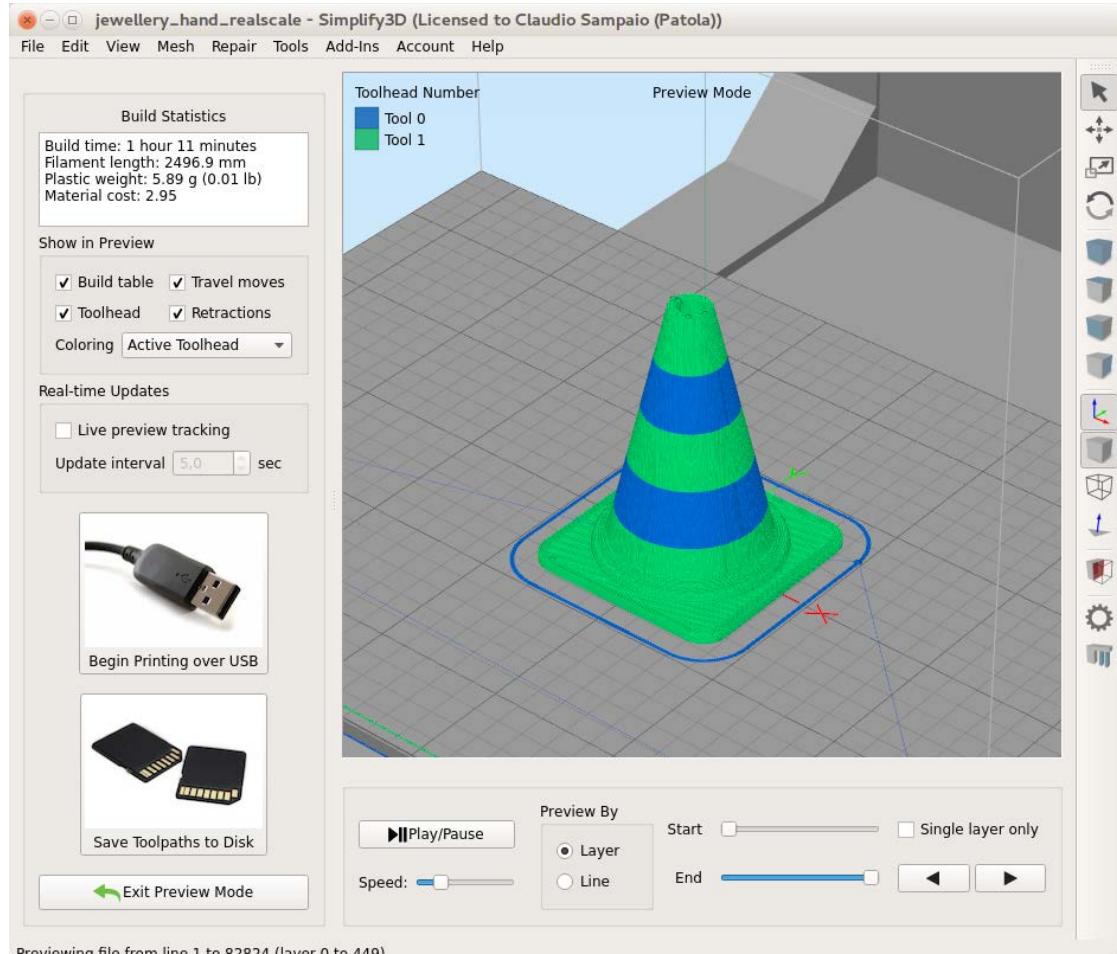
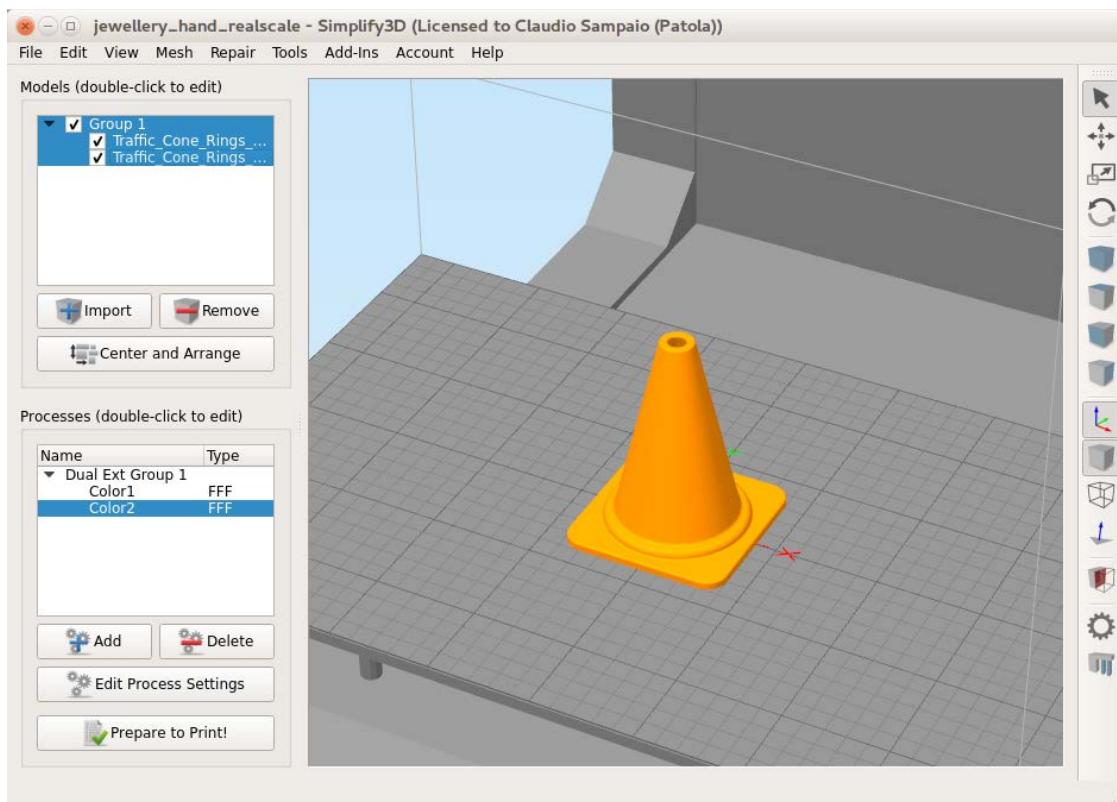




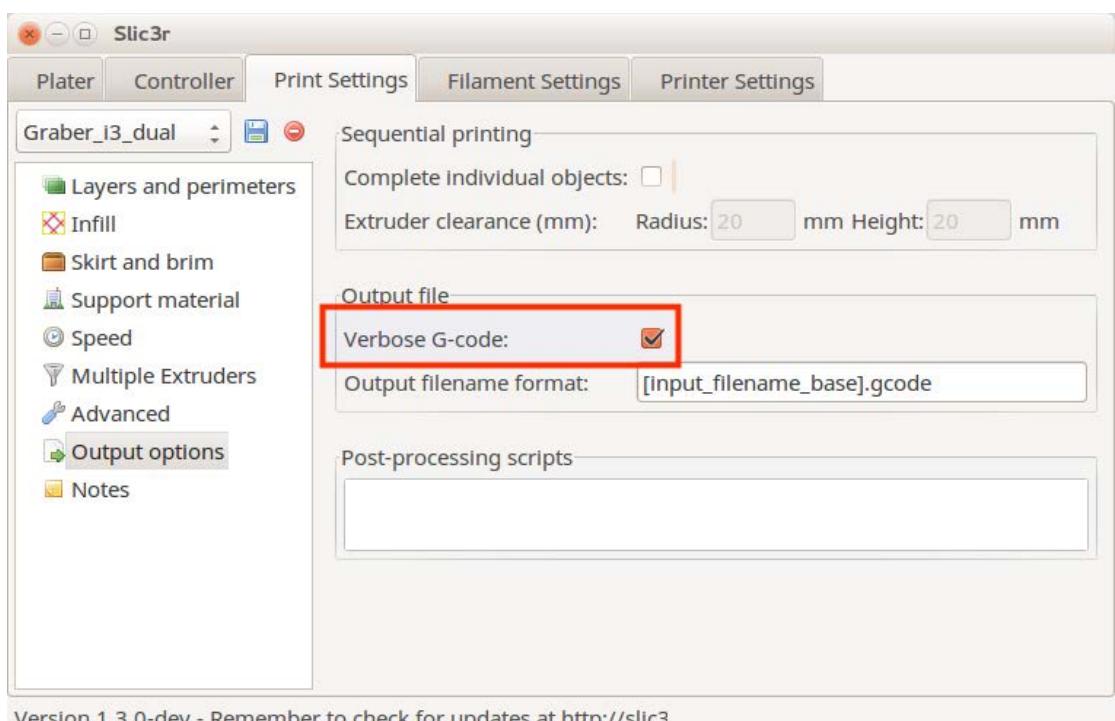


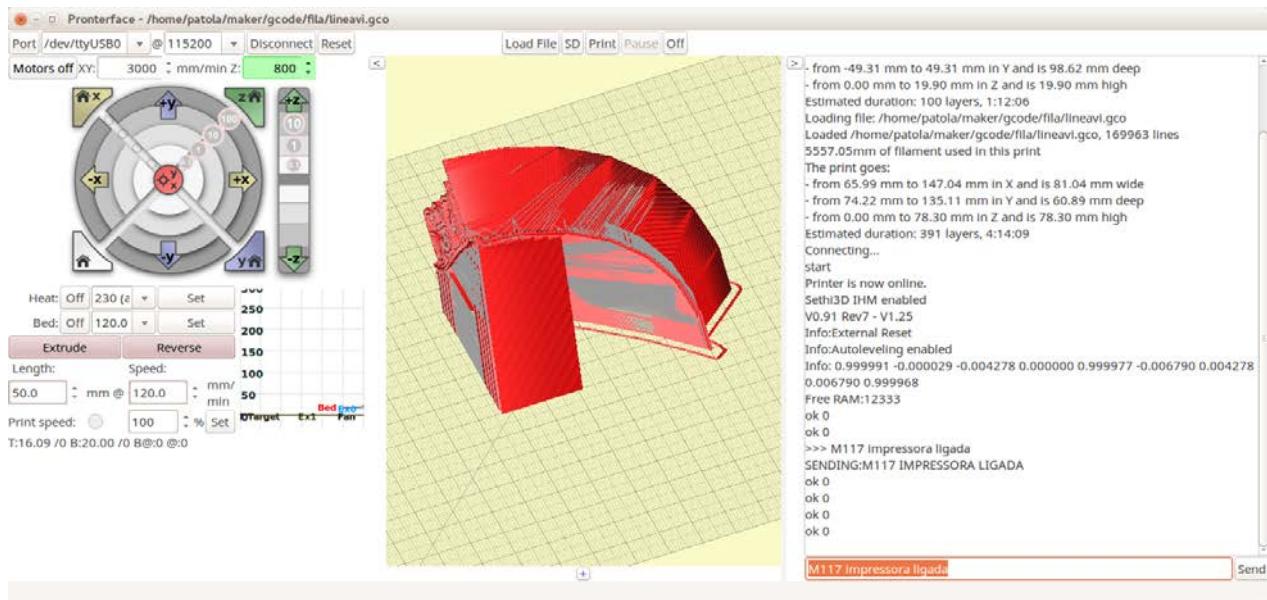






Previewing file from line 1 to 82824 (layer 0 to 449)





G28

T0

T1

G1_X100.500_Y109.500_E0.9516_F369

G1X100.500Y109.500E0.9516F369

G_1X10_0._500Y109.5_00E0.9516_F36_9

G M T

S

R

F

T

X Y Z

X10 Y5 Z30*

E

A B C

P

G1 E-0.5 F1200 ; ooze retract

G1

G0 G1

Xn:

Yn

Zn

En

Fn

Sn

S0

S1

X Y Z E F

G0 G1

G0 G1

G1 X20 Y20 F180 ; vai para X 20, Y 20 na velocidade de 180 unidades
; por minuto sem extrudar.

G0 X30 Y30 Z30 F180 E0.8 ; vai para X 30, Y 30, Z 30 na velocidade
; de 180 unidades por minuto extrudando
; 0,8 unidades de comprimento de filamento
; nesta trajetória.

G20

G21

G0 F600

G1 X40 Y10

G0 G1

G1 X40 Y10 Z20

G91

G91

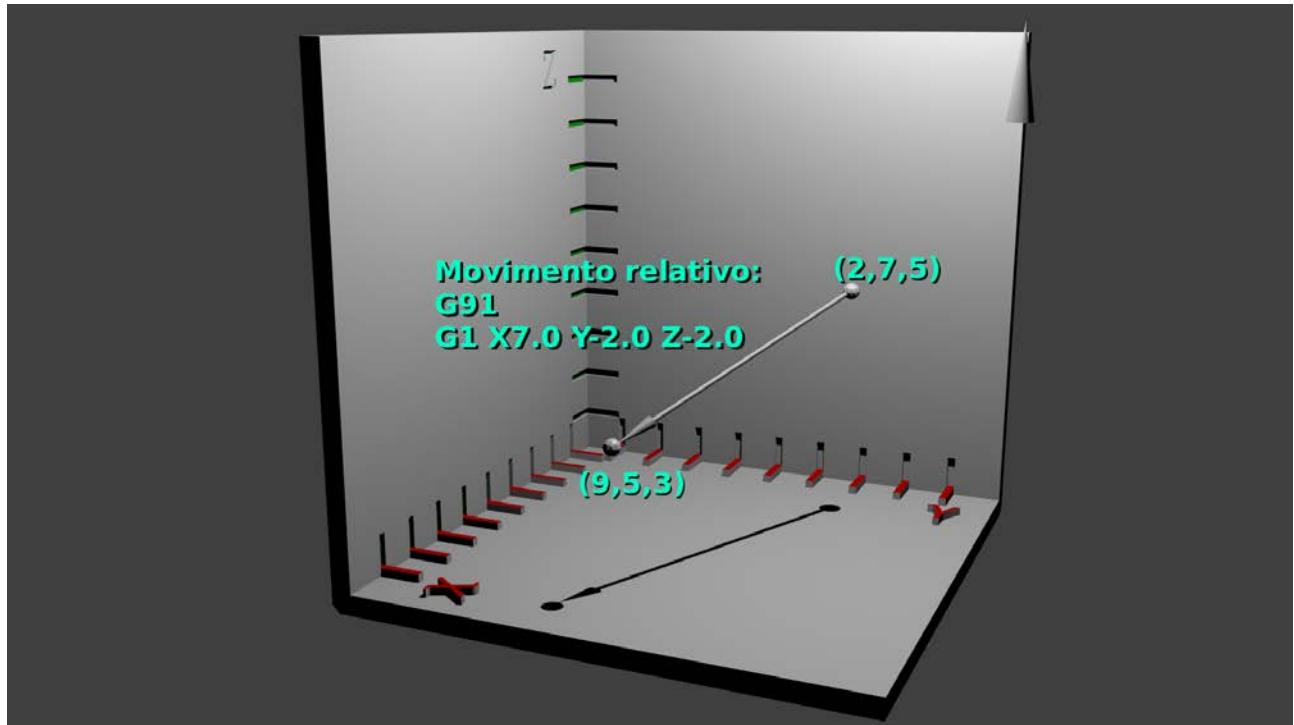
G1 X40 Y10 Z20

G28

G90

M82

M83



G1

G1 X7.0 Y-2.0 Z-2.0

G90

G1 X9.0 Y5.0 Z3.0

G2 G3

G4

Pn

Sn

G4 P10000

G4 S10

G10

G11

G20

G21

G28

G28

G28

G28

G28 X0 Y0

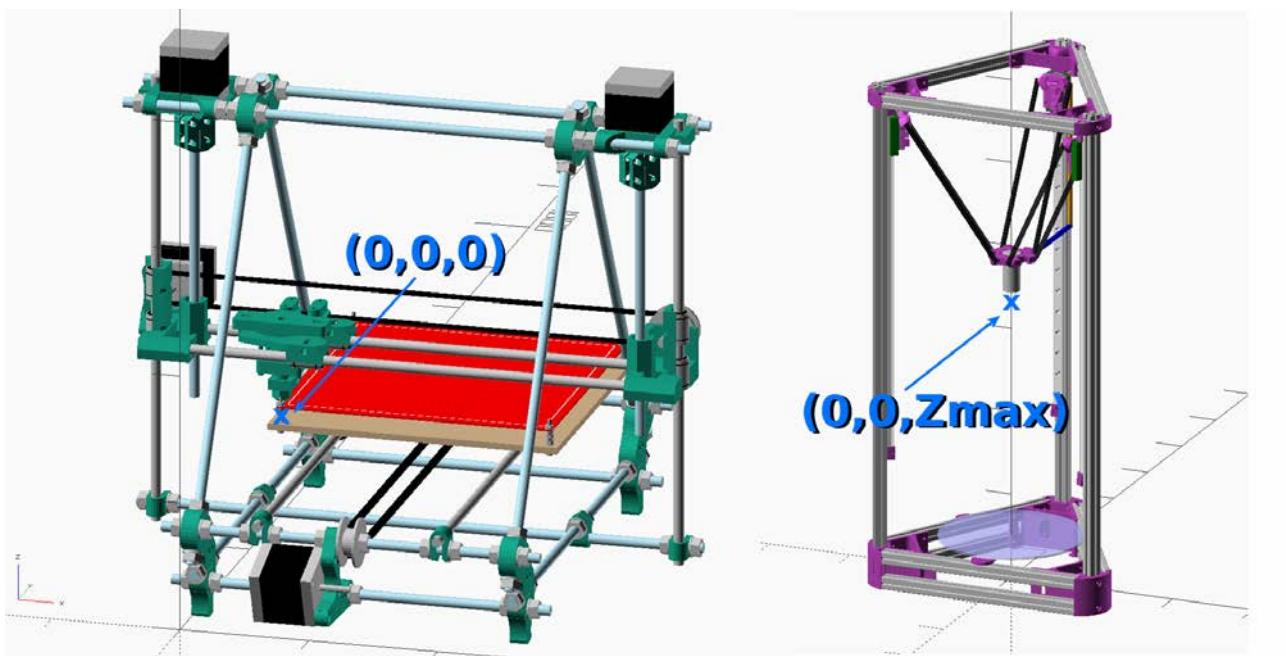
G28

Z_SAFE_HOMING

Xn

Yn

Zn



G29 G32 G33

G32

G33

G32

G29

G31 G30

G29

G29

G29

G29



G29

G28

G28

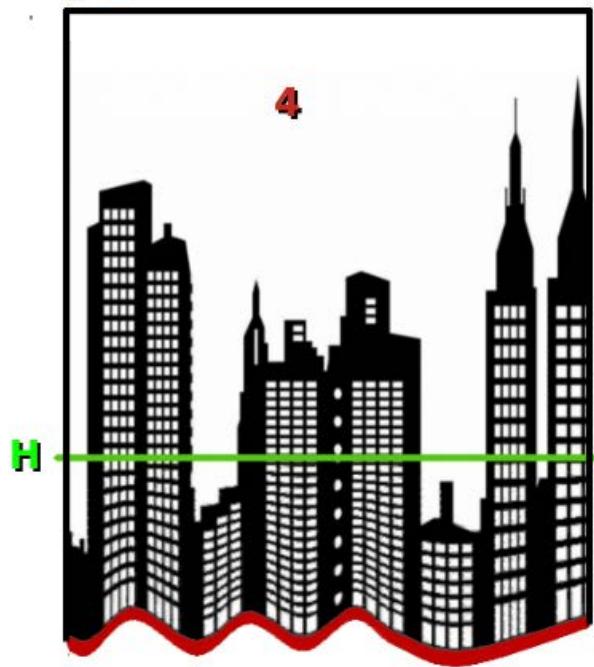
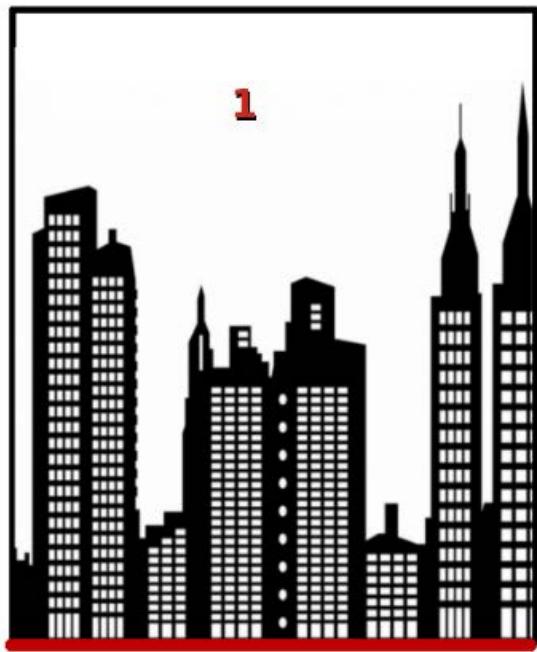
G29

G32

G29 G32

G28

G29



M

M0

M18

M17

M104 S_{nn}

M106 P_m S_{nn}

M107

M109 S_{nn}

M114

M115

M119

M140 S_{nn}

M190 S_{nn}



!