

SLA FDM: Ruby Shard

 Glacier

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Summary

A combination of SLA and FDM 3d printing options in one housing.

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This is a project of making a printer capable of doing both SLA and FDM printing, being able to switch mid print too.

The benefits are many as these 2 methods make up for each others shortcomings well, FDM has poor quality while SLA is brittle and expensive, so you make a part with the outer wall in SLA, while supports and infill are in FDM. It also has the benefits of standard dual material of being able to use 2 colors at once.

The machine also houses both parts in one, making cost to build in the median of buying an SLA and FDM machine separately.

This is the first of 2 machines planned for this project because originally this would be the beta but I decided it was good enough to now be its own in a series.

its a small machine, same footprint as the Orange 10 but print volume is 100x130x100 huge for that tiny size, once was considered to be the beta/ proof of concept project but is now it's own project.

File directions.

Number means how many to print, and O (for optional) means its either not needed or can be bought instead

I also have included mockups of all the electronics so you can model it yourself or assemble a test.

Tech needed

2 9g servos

4 nema 17s, one pancake type

titan extruder

SKR 2 or similar board

BTT WiFi module

RPI a+,3, or 4, or zero series

RPi 5 inch display

BTT mini 12864 display/tft24

12v 200w PSU

Mini J-Head hotend

1 3010 12v fan

1 3010 12v blower fan

1 4010 12v fan

1 6025 12v fan

4 TMC 2209s

2 8mm rods

2 Im8uu linear bearings (24mm)

2 20-22 tooth pulleys (8mm bore)

8 687 ball bearings

2 608 ball bearings

1 6002 ball bearing (Warning if you decide to buy this in place of printing the custom one you will need to use a Dremel or CNC to make the grooves for the hotend mount fit.)

250mm or more GT2 timing belt

Silicon glue (for the dampening feet)

4 bead springs

150mm M6 bolt (Z rod)

Currently there is no existing software to make this work beyond hand making the print files, or having the two parts work separately, but there is a discord for this project, and soon a Github so I can get something in the works

Discord: <https://discord.gg/tACu9ZarGU>

Specs are:

100mmx130mmx100mm print space

1k display

170mmx170mmx326mm footprint

WiFi printing

UPDATE: Welcome to the 0.49 Alpha update! I am updating the post as I will be moving from TinkerCad to OnShape. Upon moving I will be doing a mass overhaul of the machine, upping build quality, size, and hopefully simplicity. As it is, it looks like it could print with some tweaks, but currently no FW or OctoPrint plugin work has been done to make it work.

The active changes is swapping to ball bearings from friction and printed screws. Belts and pulleys in place of gears. Stability improvements, extruder now can mount inside frame correctly.

I am on a minor hiatus where I will just be assembling and messing with the current version while I learn OnShape and Fusion360, but once done prepare to see a very new project. 0.5 Beta will be the published project once in OnShape

Current goals:

Standard 1515 t-slot support

12864 support

Revo micro hotend support



hexagon hotend support

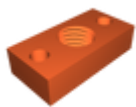
3d printable and non printable options (Such as printing the rods or buying optionally)

Larger Print Space

Finalizing the swap from gears to belts

Model files

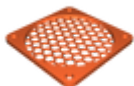
	Optional	10 files
	o1-logo-flair.stl	
	o2-8mm-220mm-rod.stl	
	o2-22tooth-pully.stl	



o1-z-nut.stl



o4-feet.stl



o1-board-fan-grill.stl



o8-687-bearing.stl



o2-lm8uu-24mm-bearing.stl



o2-608-bearing.stl

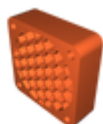


o1-6002-hotend-bearing.stl

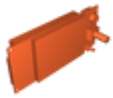


Mockups

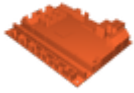
11 files



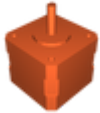
0-3010-fan-mockup.stl



0-tft-24-mockup.stl



0-skr-mockup.stl



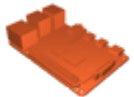
0-nema-17-mockup.stl



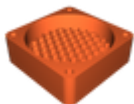
0-nema-17-pancake-mockup.stl



0-titan-mockup.stl



0-rpi-mockup.stl



0-6025-fan-mockup.stl



0-hotend-mockup.stl



0-3010blower-fan-mockup.stl



0-m6-145mm-threaded-rod-mockup.stl



2-top-beamshort.stl



2-top-beamlong.stl



1-top-armframe.stl



2-corner-fr-bl.stl



4-main-beam.stl



1-bottom-armframe.stl



1-frame-cliplleft.stl



1-top-arm-2.stl



1-frame-clipright.stl



1-top-arm-1.stl



1-fan-shroud.stl



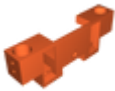
1-fan-duct.stl



1-body-beam-short.stl



1-resin-vat-top.stl



1-z-axis-carriage.stl



2-bed-screw-spacer.stl



1-bottom-arm-2.stl



1-fan-mount.stl



1-zbolt-coupler.stl



4-bed-nuts.stl



1-hub-top.stl



2-nema17-8mm-coupler.stl



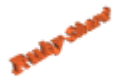
1-resin-vat-bottom.stl



4-spring-holder-top.stl



4-spring-holder-bottom.stl



1-body-text.stl



1-bed-flipper.stl



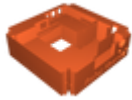
2-corner-fl-br.stl



1-bottom-arm-1.stl



1-under-text.stl



1-hub-bottom.stl

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