Open 6x12, 6x17 and 6x24 Panoramic Camera

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VIEW IN BROWSER

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Summary

Fully open source panoramic 120 film cameras.

Gadgets > Photo & Video

Tags: camera 75mm film panoramic 120 analogphotography mediumformat panorama panoramiccamera fujinon

Fully open source STEP files
Please remix and share alike

I'm sorry that all the files are not better sorted, labelled and optimized.

6x12 is designed for Fujinon SWD 65mm lens
6x17 is designed for Fujinon SWD 75mm lens
6x24 is designed for Nikkor SW f/8 90mm mm lens (Only f/8 is compatible with M65 mount)
Flange back is the distance between the back of the shutter to the film plane, if you want to design your own cones etc

FUJINON						
Lens model	Focal length	Max aperture	Copal shutter #	Image circle (f22)	Largest format (up to 8x10")	Flange back
SWD (Super Wide Deluxe)	65mm	f5.6	0	169mm	4x5"	73.4mm
SWD	75mm	f5.6	0	196mm	4x5"	85.1mm
SWD	90mm	f5.6	0	236mm	5x7"	102.5mm
SW (Super Wide)	90mm	f8.0	0	216mm	5x7"	99.2mm
SW	105mm	f8.0	0	250mm	5x7"	116.2mm
SW	125mm	f8.0	0	280mm	5x7"	138.8mm
CMW (Wide)	105mm	f5.6	0	174mm	4x5"	103.4mm
CMW	125mm	f5.6	0	204mm	4x5"	119.9mm
CMW	135mm	f5.6	0	214mm	5x7"	132.4mm
CMW	150mm	f5.6	0	223mm	5x7"	144.3mm
CMW	180mm	f5.6	1	260mm	5x7"	170.7mm
CMW	210mm	f5.6	1	309mm	5x7"	208.7mm
CMW	250mm	f6.3	1	320mm	8x10"	239.9mm
CMW	300mm	f5.6	3	412mm	8x10"	295.5mm
CMW	360mm	f6.5	3	485mm	8x10"	354.1mm
CMW	450mm	f8.0	3	520mm	8x10"	442.9mm

I've recently been made aware that there exists M77 helicoid focus rings:

https://www.ebay.com/itm/115807253793 (aluminium)

https://www.ebay.com/itm/325777990925 (brass)

This allows a much greater lens selection for all versions, but requires redesign of the lens cones, since they are much wider.

Different lenses have different flange distances which has to be taken into account.
You have to source or make your own viewfinder. Maybe someone is skilled enough to design a simple one to use with this format.
A phone can be used, I have designed phone mounts for the different versions. 6x17 and 6x24 mounts are the same.
Uses M3 threaded inserts, nuts and bolts.

Recommended to print in 0.2mm layer height. The cone with M65 helicoid mount should be printed in 0.1mm layer height for more accurate threads.

Please remix and share!

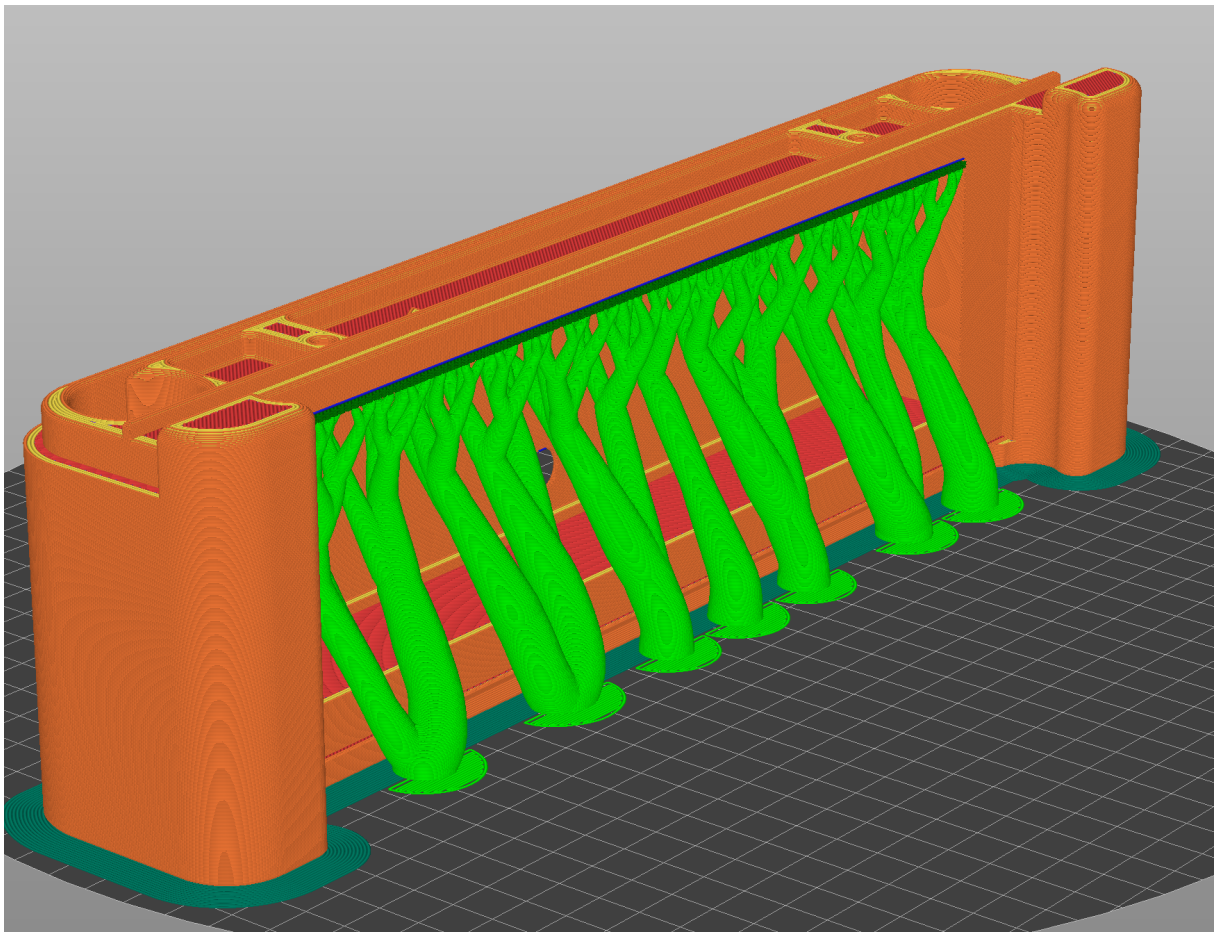
Check out https://www.printables.com/@MortenKolve_243546 for parametric lens cones!
PAINT THE INSDE OF THE CONES WITH MATTE BLACK PAINT

THE SMALL ROUND WINDOW IN THE REAR SHOULD BE COVERED WITH A THIN PIECE OF SEE-THROUGH DARK RED PLASTIC! Glue in place https://www.ebay.com/itm/195715217556

Then slide in a 120 film reminder to cover that, like this:

Organic Supports

With the recent addition of Organic Supports to PrusaSlicer, I think it will be a better solution than my integrated supports. Edit: I've since printed a second 6x12 camera and used organic supports. It's much better than my integrated ones.



UPDATES:

04.05.2025

Mostly v8, with some small changes for easier print of lens cone fastener and no dark slide (too much hassle with light leaks).

17.03.2024

Fixed some issues with the v8 version. I have still not printed it or tested it. Please print at your own risk.

13.08.2023

Made v8 of 6x17, but have not tested it yet for lightleaks, recently ran out of filament. I've reached out to Morten Kolve if he could help me design parametric lens cones with support for M65 and M77 helicoids.

I've yet to design the ground glass holder to attach at the rear of the lenscone. Need to do research to find best ground glass for this purpose.

06.02.2023

Added phone holder for the 6x12 coldshoe mount.

05.02.2023

Added phone holder for the triple coldshoe mount.

01.02.2023

Made a v6, but have not printed it or tested it.

- Requires no screws for lens cone, making the cone much easier to print.
- Integrated grips in the body
- Two less screw/inserts needed for the triple viewfinder socket
- Add some black felt adhesive to the bottom of the body where the chamfered cone sits. Can add to the bottom rear face of the cone as well. Some have experienced light leaks here.

31.01.2023 - v5!

Only 6x17 for now

After https://www.printables.com/social/243546-mortenkolve remixed my design, I was inspired to update. Essentially re-remixing.

- It still uses M3 hardware, threaded heat inserts, nuts and bolts.
- Widened the triple viewfinder mount, so that the lid thumbscrews goes though it. Also updated the lid thumbscrews to be larger and much more comfortable.
- Added a grip instead of thumbscrews to fasten the cone.
- Added a new cone for M65 helical focus mount and 75mm lens (~85mm flange). Can be found on ebay or aliexpress for cheap.
- Made the integrated supports a bit easier to remove.

Print 2x of all the knobs and the grip.**Mirror one of the grips along X axis in the slicer**.

2 x 18 or 20mm M3 bolts for film lock knobs

4 x 18 or 20mm M3 bolts for grip/cone

2 x 25mm M3 bolts for lid knobs

v5 should be backwards compatible with v4.

24.09.22

Uploaded STL files as well.

14.01.22

Added an easier to print 90mm cone for the 6x24 camera. Considering doing the same for 617 75mm, since it doesn't print that well.

06.01.22
5mm spacer added for film spool retention, so that the film does not climb when wound. Only needed if this is a problem.
02.01.22
Uploaded version 4 of all bodies, 6x12, 6x17 and 6x24 in STEP.
28.12.21

Updated some details, tolerances etc on all models (6x12, 6x17 and 6x24)

26.12.21
Added experimental 6x12 verison with lens cone for Fujinon SWD 65mm f/5.6, 73.4mm flange.

24.12.21

Added an experimental 6x24 version for Nikkor SW 90mm f/8 lens with 97mm flange distance. Not printed or tested at all.
v3 update. 22.12.21

v3 is threaded insert only for now. M3 nuts are so finicky to get right due to tolerances and overhangs etc.

More smaller quality of life adjustments and improvements.

Cone has been updated to fit the Fujinon 75mm.
Will constantly update this (sometimes without notice) until I don't. Will probably stop once I get it working. Might revisit some time in the future if the community has remixed it into something better.

Important update. The cone I designed does not fit the Fujinon SWD 75mm. The rear lens is too large. The Nikkort 75mm 4.5 would be a better choice.

v0.2 - 15.12.21
Updated some tolerances
Added 3 screw holes for tripod adapter screws
Updated film tracking numbers to follow 6x4.5 numbers and made sure it's accurate (at least with ilford films) to: 2 - 6 - 10 - 14

Fully open source. Please remix this and improve it. Share it with anyone, do whatever you want. STEP files included. Will upload all STL files as well after I get it working for me.

I have not tested this camera yet, don't have a lens I can use, but followed a flange distance chart for Fujinon SWD 75mm, so flange from front of cone to film back is ~85mm.
No idea if tolerances are accurate

Uses M3 nuts and bolts everywhere.

Model files

6x17-v5-complete.stp

6x17-v6-ii.step

‖ **updated lid**

6x17-v5-complete.stl

6x17-and-6x24-phone-mount.stl

v5-body-only.stl

v5-parts.stl

6x12-v2-complete.stl

6x12-v2-complete.stp

6x12-phone-holder.stp

6x12-phone-holder.stl

6x12-v2-body.stl

6x24-v2-complete.stl

6x24-v2-complete.stp

6x24-v2-body.stl

617-body-v4.stp

|| body, lid and cone

cone-thumbscrew.stp

coldshoe.stp

top-thumbscrew.stp

film_winder_knob.stp

5mm-film-spool-spacer.stl

|| only should it be needed to keep film down if you already printed the short version

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624-90mm-cone-easy-to-print.stp

612-90mm-cone-super-angulon-988mm-flange.stp

612-90mm-angulon-895mm-flange.stp

612-75mm-cone-734mm-flange.stp

624-90-viewfinder-mask.stl

624-body.stl

624-90mm-cone.stl

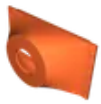
617-cone-fujinon-75mm-swd.stl

617-lid-v4.stl

617-body-v4.stl

612-lid.stl

612-body.stl



612-fujinon-65mm-swd-cone.stl

612-complete.stl

phone-mount.stp

612-camera-6x12.stp

90mm-v2-m65-cone.stl

6x24-90mm-fotoman-viewfinder-mask.stl

6x12-65mm-fotoman-viewfinder-mask.stl

v8-untested.stp

v8-untested.stl

threaded-lens-mount.stp

v9.stp

‖ **mostly v8, with some small changes for easier print of lens cone fastener and no darkslide**

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