



Telescope Eyepieces, 26mm & 28mm, 1.25" dia.



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Summary

Eyepieces for astronomical telescope, 1-1/4" barrels.

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Tags: [telescope](#) [eyepiece](#) [thingiverse](#) [astronomytelescope](#)

This project was inspired by Jerry Oltion's article in the September 2020 issue of Sky & Telescope, p. 74.

These are two eyepieces for an astronomical telescope made from lens sets available from Surplus Shed (surplussed.com). These are based on the following items:

L3973 Modified Plössl, 26mm fl

L3820 Modified Plössl, 28mm fl

Each set consists of three lenses (eye, middle, field) between 33mm and 35.5mm in diameter.

Each eyepiece consists of the following parts:

1.25" barrel with a 42.6mm dia. 1.5mm pitch external thread,

Housing with a matching internal thread,

Three lens spacers, one each for the eye lens, middle lens, and field lens.

Flexible eye guard.

I made these from ABS except for the flexible eye guards. ABS is more durable, lighter, and has a less glossy finish than PLA. The eye guards are printed from black TPU

The vertical resolution of the print is important to get acceptable quality on the threads. I printed mine at 0.12mm vertical resolution and a speed of 20mm/s. You can print all the parts without supports, but some files may need to be flipped 180o when slicing.

I haven't yet used these eyepieces under the night sky. I have compared my previous design with a commercial 26mm Super Plössl from Meade. The 3D printed eyepiece compares very favorably to the commercial eyepiece. There's a little more distortion at the edges, and some chromatic aberration. A view of the moon shows color fringes, whereas the Meade eyepiece is color-free. Contrast is as good or better than the Meade lens, and I notice no internal reflections.

Print Settings

Printer Brand:

Anet

Printer:

A8

Rafts:

No

Supports:

No

Resolution:

0.12mm

Infill:

20%

Filament: Inland ABS & TPU Black

Notes:

Make all parts from ABS except for the flexible eye guards, which are TPU. Take care in assembling the lenses; they must be properly oriented and in the correct order. Surplus Shed provides an info sheet with the lenses, but doesn't give a lot of specifics about possible designs. They specify that the lenses "should be as close as possible without actually touching." My design has a nominal spacing of 0.48mm, which seems to work well. The clearance between the lenses and the spacers is 0.3mm. This seems to work well to keep the lenses in place but allows them to slip easily into the spacers.

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Category: Physics & Astronomy

Model files

eyepiece_lens_spacer_I3973_middle.stl

eyepiece_eye_guard_I3820.stl

eyepiece_eye_guard_I3973.stl

eyepiece_barrel_external_thread_I3820.stl

eyepiece_lens_spacer_I3820_field.stl

eyepiece_lens_spacer_I3973_field.stl

eyepiece_barrel_external_thread_I3973.stl

eyepiece_barrel_internal_thread_I3973.stl

eyepiece_barrel_internal_thread_I3820.stl

eyepiece_lens_spacer_I3973_eye.stl

eyepiece_lens_spacer_I3820_middle.stl

eyepiece_lens_spacer_I3820_eye.stl

[Find source .stl files on Thingiverse.com](#)

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