

Pinhole Camera Aperture Chart

Calculating exposures for your pinhole camera can be difficult. The Lensless Camera Mfg. Co., whose models we sell, has provided us with the following table of apertures and f-stops for their products.

Please note that the *format* (4x5, 5x7, etc.) of the camera is irrelevant; only the working aperture and focal length determine the f-stop.

Focal Length	Pinhole dia. (thousandths)	Pinhole dia. (fractions)	F-stop
675mm/27"	0.0156"	1/64"	f/2000
450mm/18"	0.0156"	1/64"	f/1200
300mm/12"	0.0156"	1/64"	f/840
225mm/9"	0.0156"	1/64"	f/630
200mm/8"	0.0156"	1/64"	f/560
150mm/6"	0.0156"	1/64"	f/420
100mm/4"	0.0156"	1/64"	f/280
75mm/3"	0.013	1/77"	f/230
50mm/2"	0.013"	1/77"	f/154

Normal light meters do not, of course, work with abnormal cameras, but a relatively simple calculation will permit you to meter for a larger f/stop and convert the time given to one suitable for your pinhole camera. If you:

1. set your light meter to f/stop A ,
2. it returns time S , and
3. your pinhole camera has aperture B ,
4. you can find the correct exposure time X with the following formula:

$$SB^2/A^2=X$$

The resulting time will generally be very long, so you will have to adjust for reciprocity failure; unfortunately, different films require different adjustments, so you will have to determine the proper formula from the tech sheets for the film you are using. A rule of thumb for most black-and-white films is as follows:

- For exposures between one and ten seconds, *double* the exposure time derived from metering
- For exposures between ten and 100 seconds, increase the exposure *five* times
- For exposures of over 100 seconds, increase the exposure *twelve* times (or, as Lensless Camera Mfg. Co. recommends, "open the shutter and go have lunch")

Pinhole Conversion Chart for Needle Sizes

As seen in Jim Shull's "The Beginner's Guide to Pinhole Photography"

Needle No.	Diameter	Best Focal Length	F-stop
4	.036"	20"	f/550
5	.031"	15"	f/490
6	.029"	13"	f/450
7	.026"	10"	f/390
8	.023"	8"	f/350
9	.020"	6.5"	f/300
10	.018"	5"	f/280
12	.016"	4"	f/250
13	.013"	2.5"	f/190