

## TECHSPEC® Complete Achromat Prototyping Kit



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### Product Downloads

### General

Prototyping Kit

Type:

Kit

Function:

### Regulatory Compliance

RoHS 2015:

## Product Details

- Imaging Lens System for Prototyping
- Ideal for Identifying Desired Magnification and  $f/\#$
- Compatible with Helicoid Barrel for Use With C-Mount Cameras

A pair of achromats can offer surprising performance in imaging applications. This system enables experimentation with different focal length ratios to achieve a variety of magnifications and fields of view. The camera sensor and object should be placed at the focal length of the image and object achromat, respectively (see diagram). The  $f/\#$  of the lens can be varied by using different apertures. The aperture is a center spacer that slides (no threads) into place between the achromats. Proper focusing can be attained using [C-Mount spacers](#) (coarse) and the [Helicoid Barrel](#) (fine). The Achromat Prototyping cell threads directly into the helicoid barrel and retainers are used to fix the relative position of the cell. Only [12.5mm diameter achromats](#) can be used with this system. Achromat prototyping kit ([#54-666](#)) includes helicoid barrel, achromat prototyping cell, two retaining rings (15mm, for inside helicoid barrel) and [12.5mm achromat kit](#). Achromat prototyping cell ([#54-719](#)) includes the mounting cell, two retainers (for inside mounting cell) and aperture kit. Aperture kit ([#54-720](#)) contains seven apertures of 0.0 (customizable by user), 2.0, 3.0, 4.0, 6.0, 8.0, and 10.6mm diameters.

## Technical Information

Object FL	Image Achromat Focal Length												
	14.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0	60.0	75.0	80.0	90.0	100.0
14.0	1.00*	1.43	1.79	2.14	2.50	2.86	3.21	3.57	4.29	5.36	5.71	6.43	7.14
20.0	0.70*	1.00	1.25	1.50	1.75	2.00	2.25	2.50	3.00	3.75	4.00	4.50	5.00
25.0	0.56*	0.80	1.00	1.20	1.40	1.60	1.80	2.00	2.40	3.00	3.20	3.60	4.00
30.0	0.47*	0.67	0.83	1.00	1.17	1.33	1.50	1.67	2.00	2.50	2.67	3.00	3.33
35.0	0.40*	0.57	0.71	0.86	1.00	1.14	1.29	1.43	1.71	2.14	2.29	2.57	2.86
40.0	0.35*	0.50	0.63	0.75	0.88	1.00	1.13	1.25	1.50	1.88	2.00	2.25	2.50
45.0	0.31*	0.44	0.56	0.67	0.78	0.89	1.00	1.11	1.33	1.67	1.78	2.00	2.22
50.0	0.28*	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.20	1.50	1.60	1.80	2.00
60.0	0.23*	0.33	0.42	0.50	0.58	0.67	0.75	0.83	1.00	1.25	1.33	1.50	1.67
75.0	0.19*	0.27	0.33	0.40	0.47	0.53	0.60	0.67	0.80	1.00	1.07	1.20	1.33
80.0	0.18*	0.25	0.31	0.38	0.44	0.50	0.56	0.63	0.75	0.94	1.00	1.13	1.25
90.0	0.16*	0.22	0.28	0.33	0.39	0.44	0.50	0.56	0.67	0.83	0.89	1.00	1.11
100.0	0.14*	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.60	0.75	0.80	0.90	1.00

\*Image FL of 14 is not recommended for C-Mount Cameras

Aperture Diameter	Image Achromat Focal Length												
	14.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0	60.0	75.0	80.0	90.0	100.0
10.60	1.32	1.89	2.36	2.83	3.30	3.77	4.25	4.72	5.66	7.08	7.55	8.49	9.43
8.00	1.75	2.50	3.13	3.75	4.38	5.00	5.63	6.25	7.50	9.38	10.00	11.25	12.50
6.00	2.33	3.33	4.17	5.00	5.83	6.67	7.50	8.33	10.00	12.50	13.33	15.00	16.67
4.00	3.50	5.00	6.25	7.50	8.75	10.00	11.25	12.50	15.00	18.75	20.00	22.50	25.00
3.00	4.67	6.67	8.33	10.00	11.67	13.33	15.00	16.67	20.00	25.00	26.67	30.00	33.33
2.00	7.00	10.00	12.50	15.00	17.50	20.00	22.50	25.00	30.00	37.50	40.00	45.00	50.00

Application Note: Achromat pairs used at moderate  $f/\#$ s ( $f/4 - f/8$ ) provide good aberration correction for applications that do not require wide fields of view.

