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TECHSPEC®

Cell with Two Retainers and Apertures for Achromat Proto Kit



Stock **#54-719**

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C\$420<sup>.00</sup>

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| General         |           |
|-----------------|-----------|
| Prototyping Kit | Type:     |
| Kit             | Function: |

| Regulatory Compliance |            |
|-----------------------|------------|
| Compliant             | RoHS 2015: |

- 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.

| 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. |                             |       |       |       |       |       |       |       |       |       |       |       |       |

