

# Fast Achromatic Pairs

- Infinite Conjugate Ratio
- Higher NA than Our Stock Doublets
- Lenses Corrected for Minimum Spot Size Over Wavelength Band
- Ideal for Laser Focusing
- High-Quality, Chrome-Plated Brass Housing

These fast achromatic doublet pairs have a broadband antireflection (BBAR) coating and are designed to achieve a higher NA/shorter focal length than conventional doublets. The pair of doublets used are chosen so that they provide achromatic correction and minimize spot size for an infinite conjugate ratio.

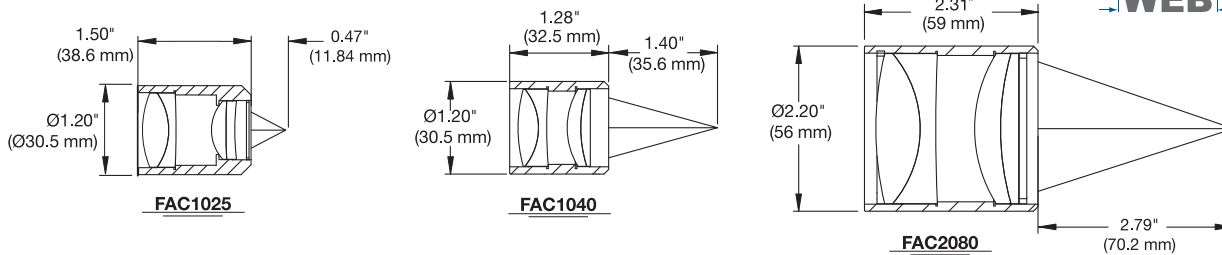
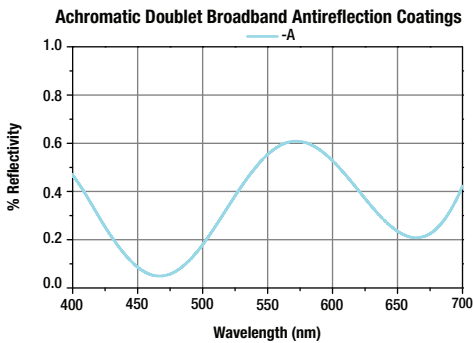


Each of these doublet pairs is housed in a custom chrome-plated brass mount with the effective focal length engraved on it for easy identification. Since these pairs are pre-mounted, they can be handled without transferring fingerprints or skin oils to the optic.

### Specifications

- **Focal Length Tolerance:** ±1%
- **Design Wavelengths:** 486.1, 587.6, and 656.3 nm
- **AR Coated:** BBAR  $R_{avg} < 0.5\%$  from 400-700 nm

Please contact your local Thorlabs office for custom optical scans.



ITEM#	f	NA	CA*	DESCRIPTION	\$	£	€	RMB
FAC1025-A	29.0 mm	0.35	23.2 mm	Fast Achromatic Doublet Pair	\$ 335.00	£ 232.30	€ 297.50	¥ 2,828.80
FAC1040-A	42.0 mm	0.26	23.2 mm	Fast Achromatic Doublet Pair	\$ 410.00	£ 284.30	€ 364.10	¥ 3,462.10
FAC2080-A	83.9 mm	0.26	45.0 mm	Fast Achromatic Doublet Pair	\$ 560.00	£ 388.30	€ 497.20	¥ 4,728.70

\*Clear Aperture

Fast Achromatic Pairs, like aspheric lenses, are useful for reducing the focal length of a system and increasing the numerical aperture (NA). The advantage of using a fast achromat is in its ability to focus polychromatic light efficiently. In the first set of plots an AL2520-A Large Diameter Aspheric Lens is shown focusing three wavelengths in the visible region. When compared to the second set of plots, which show an FAC1025-A also focusing three wavelengths, the performance is apparent. The AL2520-A achieves an RMS radius of 80.65  $\mu\text{m}$  while the FAC1025-A achieves a radius of 4.76  $\mu\text{m}$ , a 17x improvement in performance.

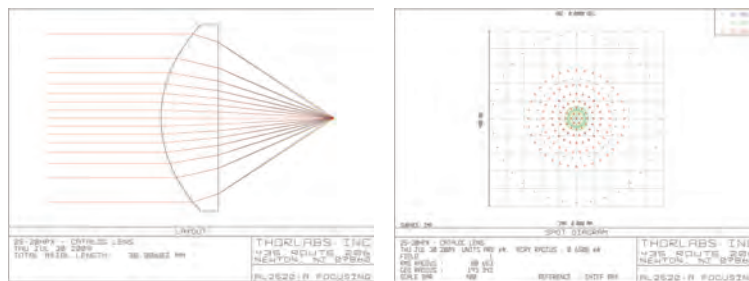


Figure 1 AL2520-A

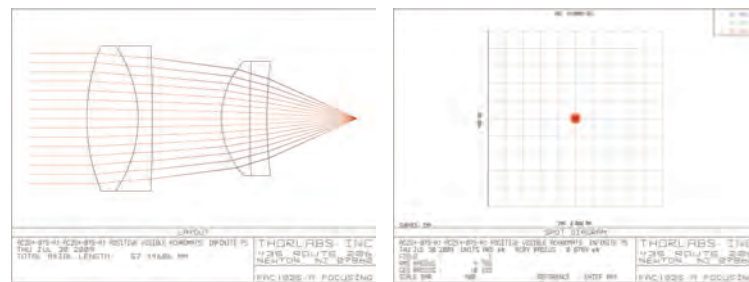


Figure 2 FAC1025-A