

TECHSPEC® Ci SERIES

FIXED FOCAL LENGTH LENSES

#86-616 • 50mm • f/4.0

Featuring low lens-to-lens variation and a broadband anti-reflection (AR) coating for maximum light transmission, TECHSPEC® Ci Lenses are ideal for a wide range of applications. An adjustable, lockable focus enables setting the best focus position prior to integrating into instrumentation, avoiding future adjustments. The wide range of fixed aperture options ensures maximum flexibility of resolution, throughput, and depth of field.



Focal Length:	50mm
Working Distance¹:	250mm - ∞
Max. Sensor Format:	2/3"
Camera Mount:	C-Mount
Aperture (f/#):	f/4.0
Distortion %²:	<0.38%
Object Space NA²:	0.021762

1. From front housing 2. At Minimum W.D.

Magnification Range:	0 - 0.207X
Type:	Fixed Focal Length Lens
Length:	55.52mm
Weight:	63g
RoHS:	Compliant
Number of Elements (Groups):	6 (4)
AR Coating:	425 - 675nm BBAR

At Minimum W.D. (250mm)									
Sensor Size	1/4"	1/3"	1/2.5"	1/2"	1/1.8"	2/3"	1"	28.7mm	4/3"
Field Of View ³	17.5mm - 4.1°	23.3mm - 5.5°	28.2mm - 6.6°	31.1mm - 7.3°	35.0mm - 8.2°	42.8mm - 10.0°	N/A	N/A	N/A

3. Horizontal FOV on Standard (4:3) sensor format. Min W.D.

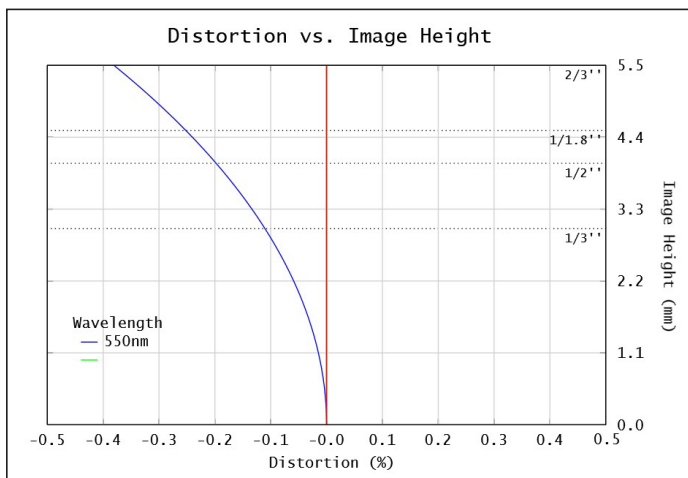


Figure 1: Distortion at the maximum sensor format. Positive values correspond to pincushion distortion, negative values correspond to barrel distortion.

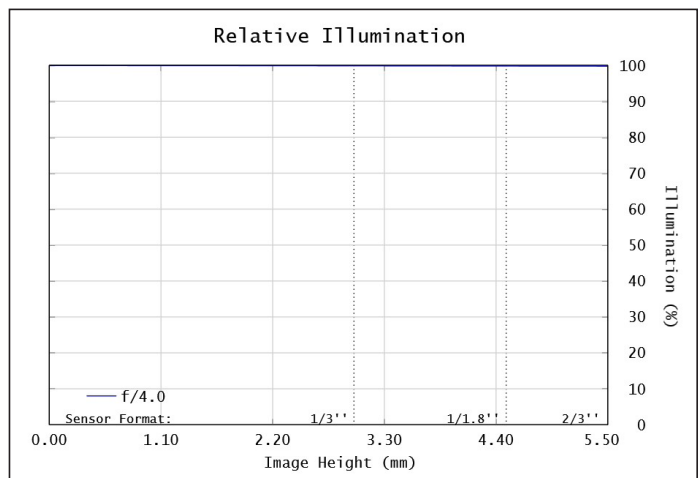


Figure 2: Relative illumination (center to corner)

In both plots, field points corresponding to the image circle of common sensor formats are included. Plots represent theoretical values from lens design software. Actual lens performance varies due to manufacturing tolerances.

MTF & DOF: f/4.0
WD: 425mm
HORIZONTAL FOV: 74mm

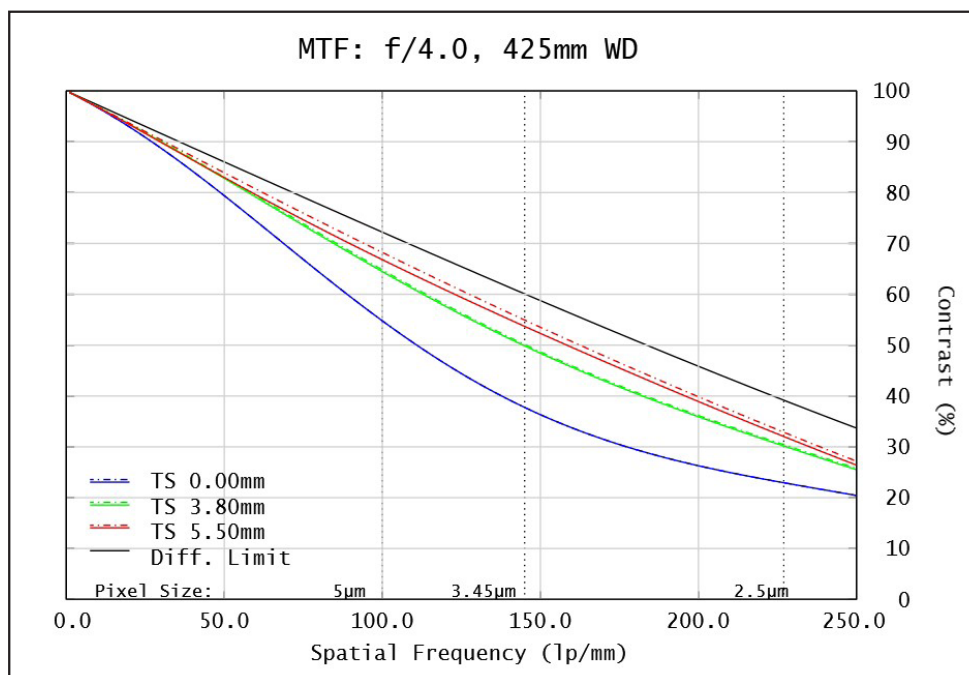


Figure 3: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for $\lambda = 486\text{nm}$ to 656nm . Included are the Tangential and Sagittal values for field points on center, at 70% of full field and the maximum sensor format. Solid black line indicates diffraction limit determined by f/#-defined aperture. Frequencies corresponding to the Nyquist resolution limit of pixel sizes are indicated.

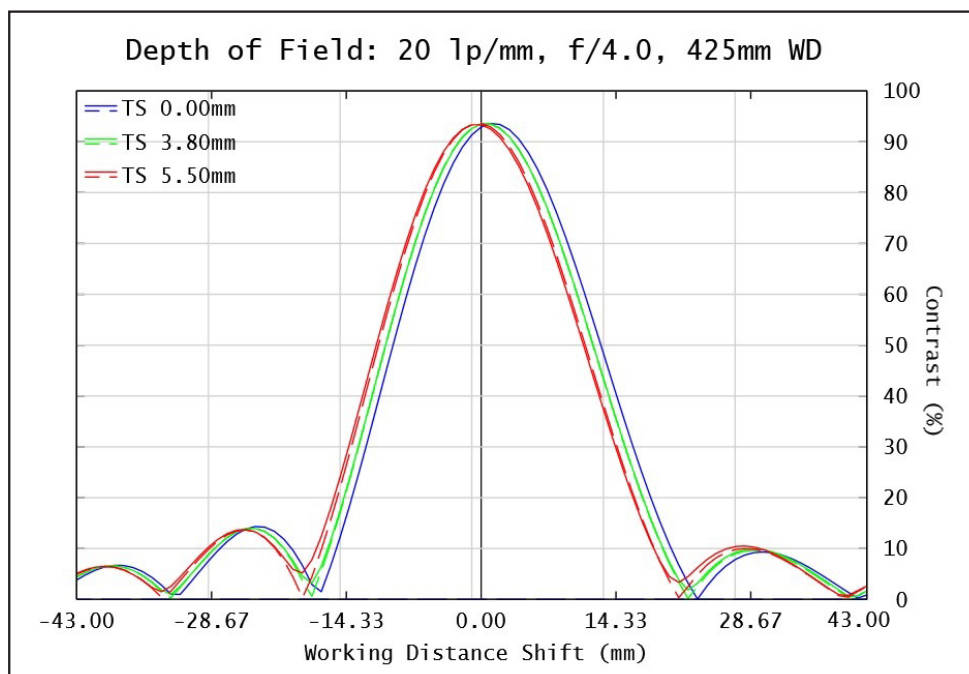


Figure 4: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). Contrast is plotted to two times the focus distance. Note object spatial frequency changes with working distance.

Plots represent theoretical values from lens design software. Actual lens performance varies due to manufacturing tolerances.

MTF & DOF: f/4.0
WD: 725mm
HORIZONTAL FOV: 121mm

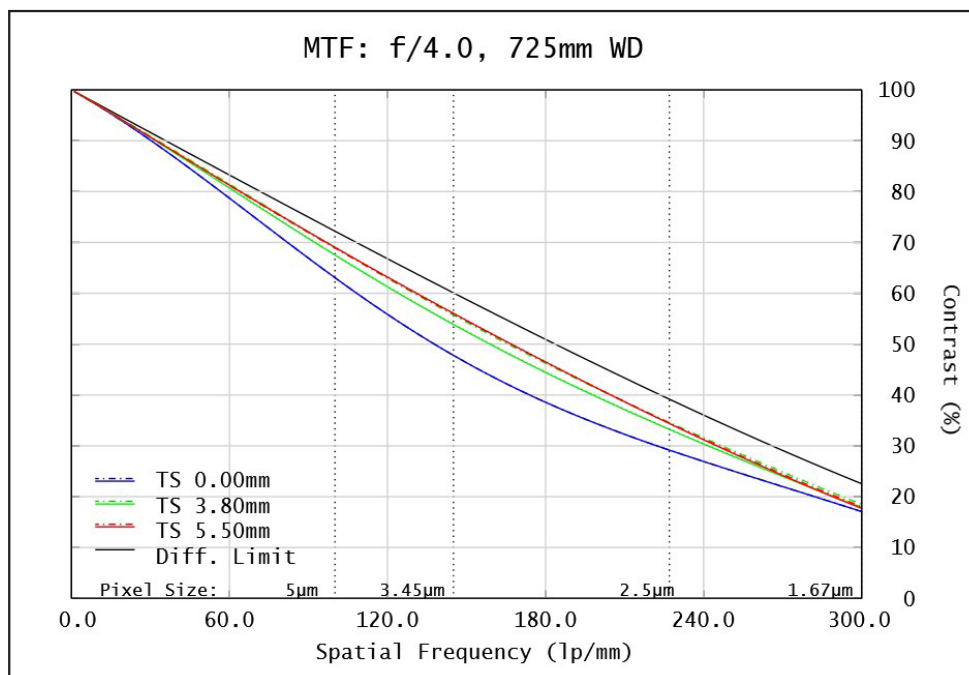


Figure 5: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for $\lambda = 486\text{nm}$ to 656nm . Included are the Tangential and Sagittal values for field points on center, at 70% of full field and the maximum sensor format. Solid black line indicates diffraction limit determined by f/#-defined aperture. Frequencies corresponding to the Nyquist resolution limit of pixel sizes are indicated.

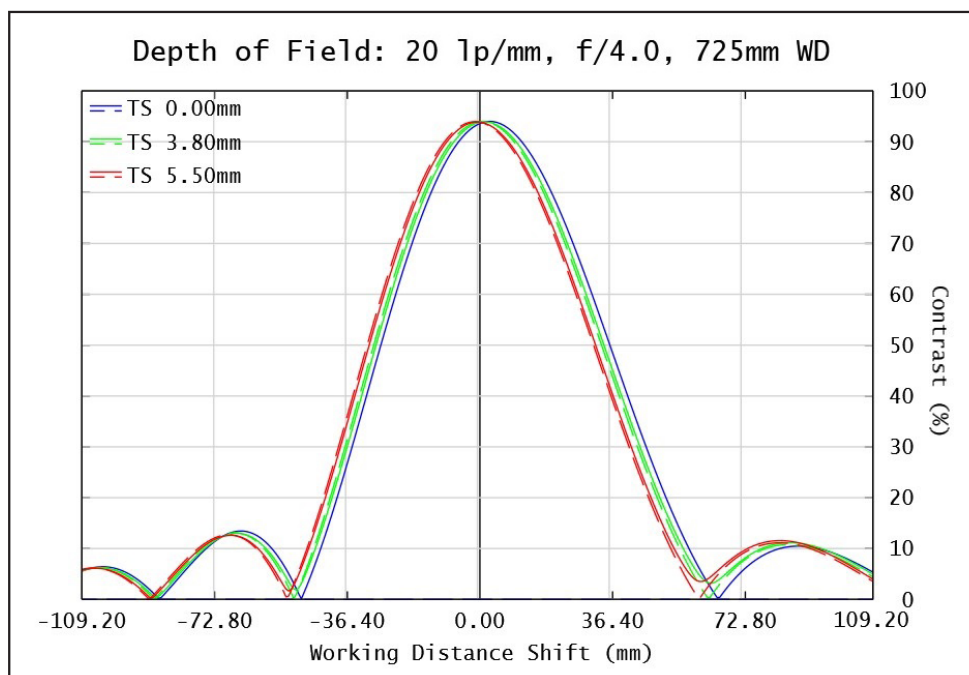


Figure 6: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). Contrast is plotted to two times the focus distance. Note object spatial frequency changes with working distance.

Plots represent theoretical values from lens design software. Actual lens performance varies due to manufacturing tolerances.