

TECHSPEC® GREEN SERIES

M16 IMAGING LENSES

#54-855 • 25mm • f/2.1

TECHSPEC® Green Series M16 Imaging Lenses designed for use in compact and board level cameras provide excellent image quality in a small, versatile package. Optimized to cover 1/8" and 1/2" sensor formats and weighing only a few grams, these machine vision lenses meet the most demanding space and weight restrictions.



Focal Length:	25mm
Working Distance¹:	150mm - ∞
Max. Sensor Format:	1/2"
Camera Mount:	M16 x 0.5
Aperture (f/#):	f/2.1
Distortion %²:	<1.80%
Object Space NA²:	0.042853

1. From front housing 2. Image space MTF contrast

Magnification Range:	0 - 0.187X
Type:	M16 Imaging Lens
Length:	24.2mm
Weight:	13g
RoHS:	Compliant
Number of Elements (Groups):	4 (4)
AR Coating:	400-700nm MgF ₂

At Minimum W.D. (150mm)						
Sensor Size	1/4"	1/3"	1/2.5"	1/2"	1/1.8"	2/3"
Field Of View³	19.4mm - 8.2°	26.0mm - 11.0°	31.5mm - 13.3°	34.8mm - 14.7°	N/A	N/A

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

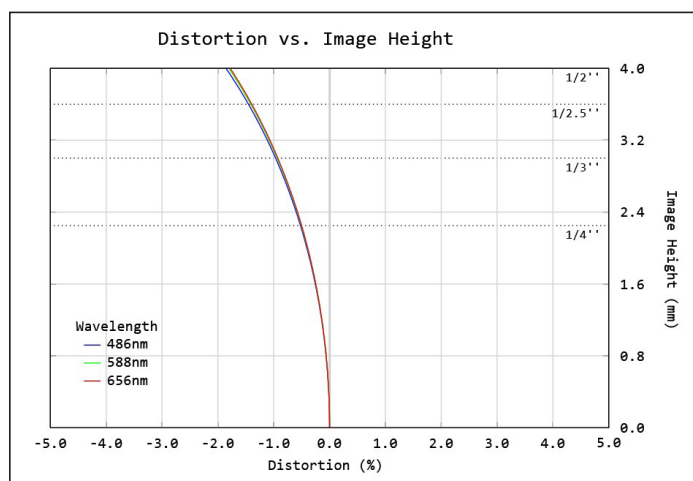


Figure 1: Distortion at the maximum sensor format. Positive values correspond to pincushion distortion, negative values correspond to barrel distortion.

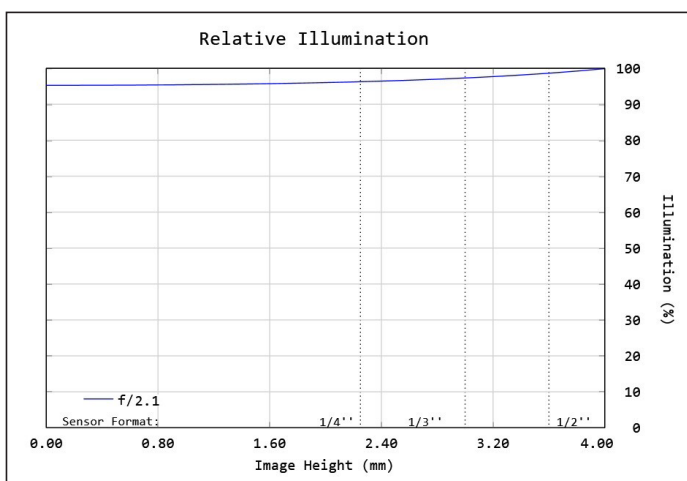


Figure 2: Relative illumination (center to corner)

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/2.1
WD: 300mm
HORIZONTAL FOV: 74mm

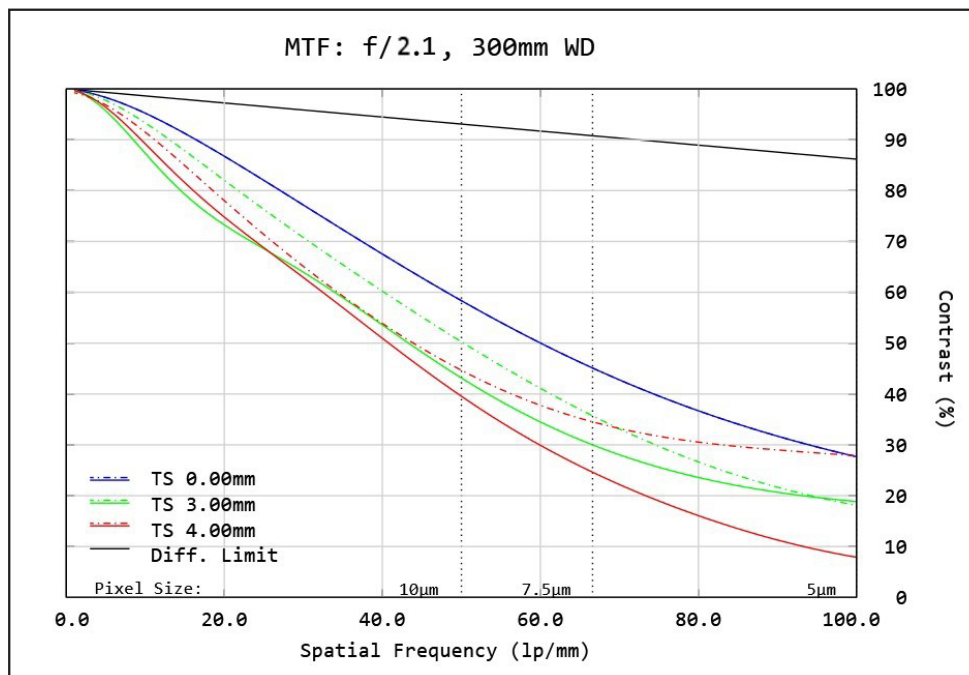


Figure 3: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for $\lambda = 486\text{nm}$ to 656nm . Included are the Tangential and Sagittal values for field points on center, at 70% of full field and the maximum sensor format. Solid black line indicates diffraction limit determined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

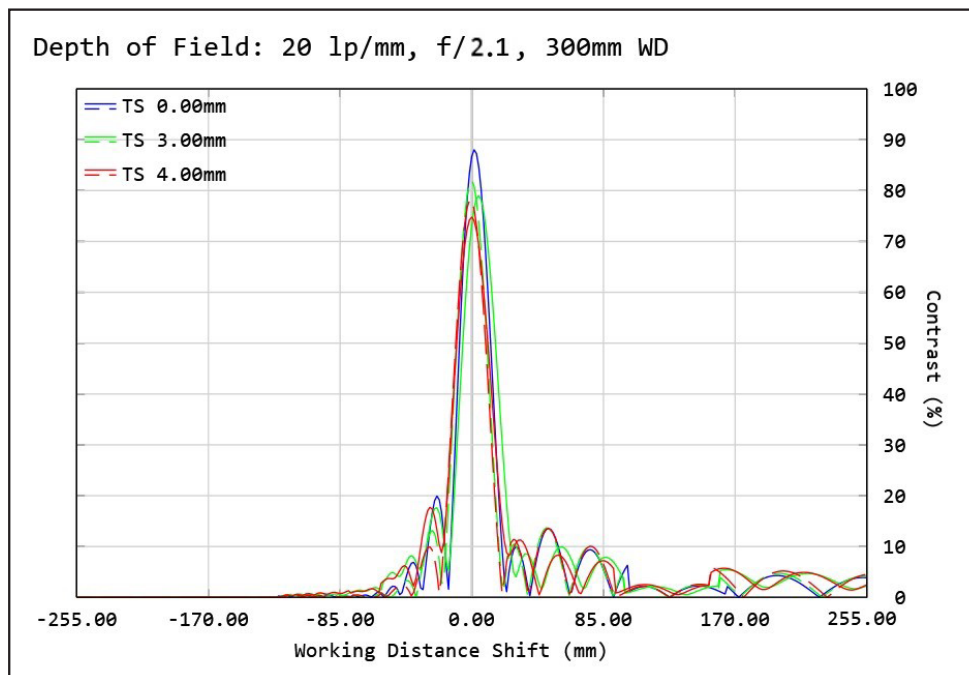


Figure 4: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). Contrast is plotted to two times the focus distance. Note object spatial frequency changes with working distance.

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

MTF & DOF: f/2.1
WD: 402mm
HORIZONTAL FOV: 100mm

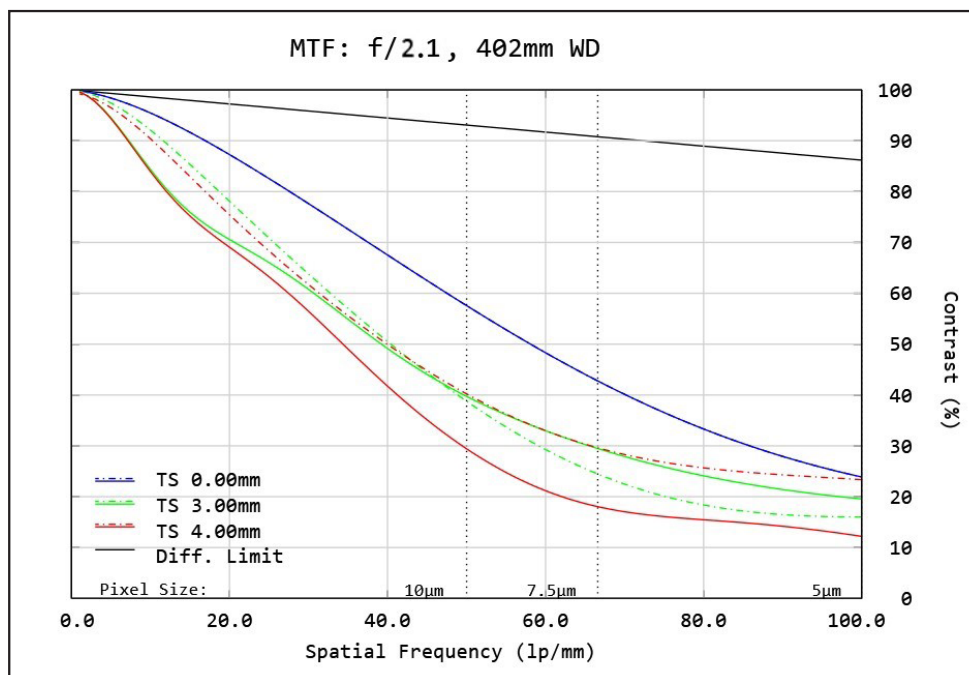


Figure 5: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for $\lambda = 486\text{nm}$ to 656nm . Included are the Tangential and Sagittal values for field points on center, at 70% of full field and the maximum sensor format. Solid black line indicates diffraction limit determined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

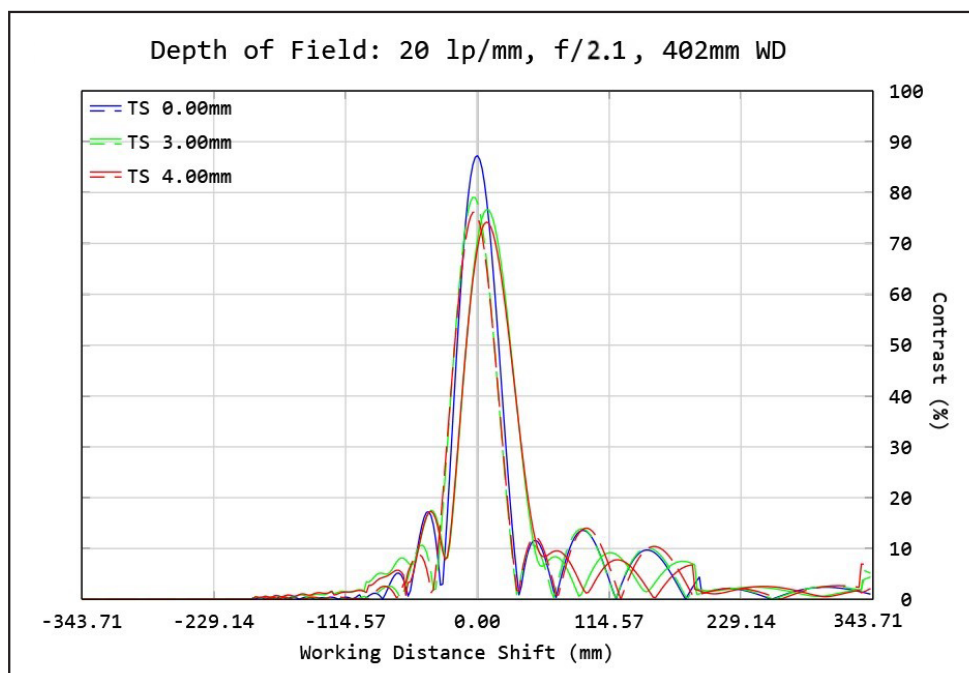


Figure 6: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). Contrast is plotted to two times the focus distance. Note object spatial frequency changes with working distance.

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