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TECHSPEC® COMPACT FIXED FOCAL LENGTH LENS
#59-871 • 25mm FL • f/1.4

Designed for use in machine vision applications, our TECHSPEC® Compact Fixed Focal Length Lenses are ideal for use in factory automation, inspection or qualification. These machine vision lenses have been optically designed with the working distance and resolution requirements of factory automation and inspection in mind. Featuring large maximum apertures, these high performance lenses can be used in even the most restrictive lighting conditions. Each lens has a broadband anti-reflection coating, which increases transmission by up to 12 percent over the standard MgF_2 coating on competitive lenses.



Focal Length:	25mm
Minimum Working Distance[1]:	100mm
Focus Range[1] (Lockable):	100mm - ∞
Length at Near Focus:	30.43mm
Length at Far Focus:	30.43mm
Filter Thread:	M25.5 x 0.5
Max. Sensor Format:	⅔"
Camera Mount:	C-Mount

Aperture (f/#):	f/1.4 - f/17
Magnification Range:	0X - 0.025X
Distortion[2]:	<0.7%
Object Space NA[2]:	0.023
Number of Elements (Groups):	7 (6)
AR Coating:	425 - 675nm BBAR
Weight:	48g

Sensor Size	¼"	⅓"	½.5"	½"	⅓.8"	⅔"	1"	4⁄3"
Field of View[3]	14.2mm - 8.2°	19.0mm - 10.9°	22.6mm - 12.9°	25.4mm - 14.5°	28.5mm - 16.1°	35.0mm - 19.8°	N/A	N/A

1. From front of housing 2. At 200mm W.D. 3. Horizontal FOV on standard 4:3 sensor format. Min. W.D. - angular FOV at infinite conjugate

Specifications subject to change

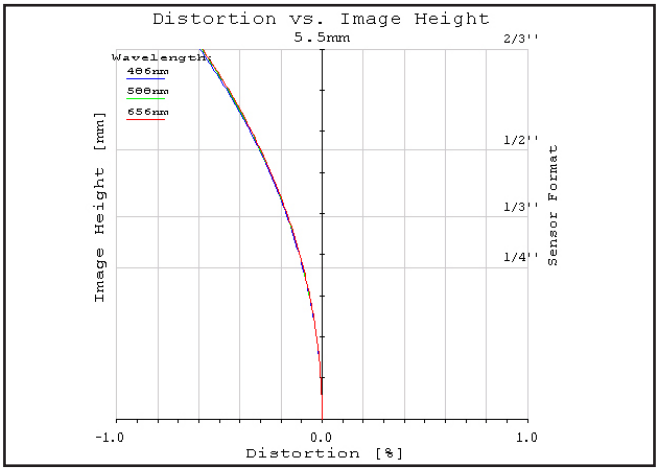


Figure 1: Distortion at the maximum sensor format. Positive values correspond to pincushion distortion, negative values correspond to barrel distortion.

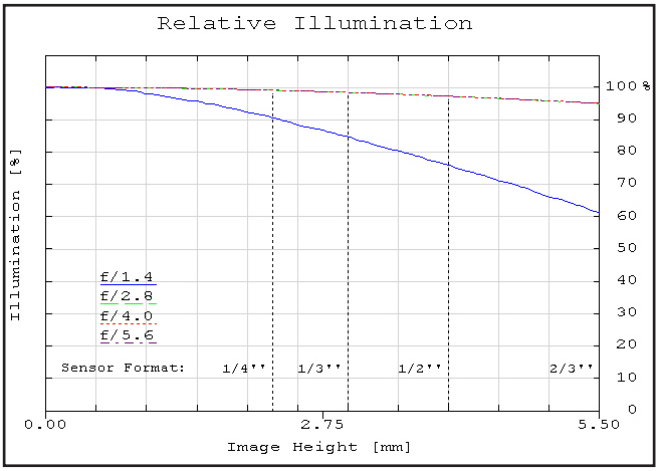


Figure 2: Relative illumination (center to corner)

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.

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TECHSPEC® COMPACT FIXED FOCAL LENGTH LENS
#59-871 • 25mm FL • f/1.4

MTF & DOF: f/2.8
WD: 200mm

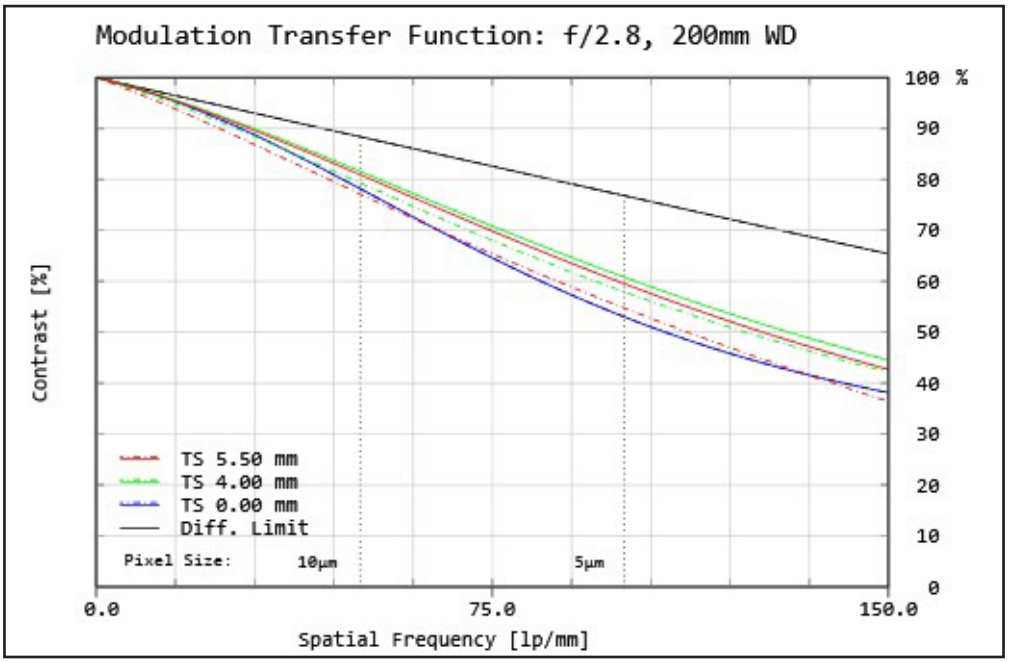


Figure 3: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for λ = 486nm to 656nm. Included are Tangential and Sagittal values for field points on center, at 70% of full field and at the maximum sensor format. Solid black line indicates diffraction limit determined by f/#-defined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

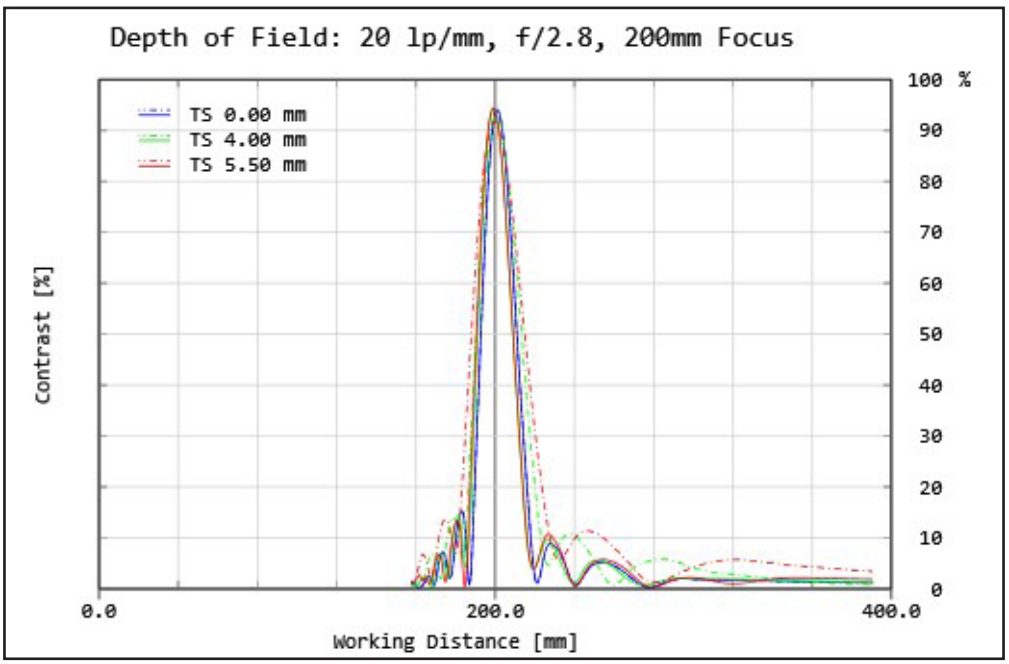


Figure 4: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). Contrast is plotted to two times the focus distance. Note object spatial frequency changes with working distance.

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

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TECHSPEC® COMPACT FIXED FOCAL LENGTH LENS
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MTF & DOF: f/4.0
WD: 200mm

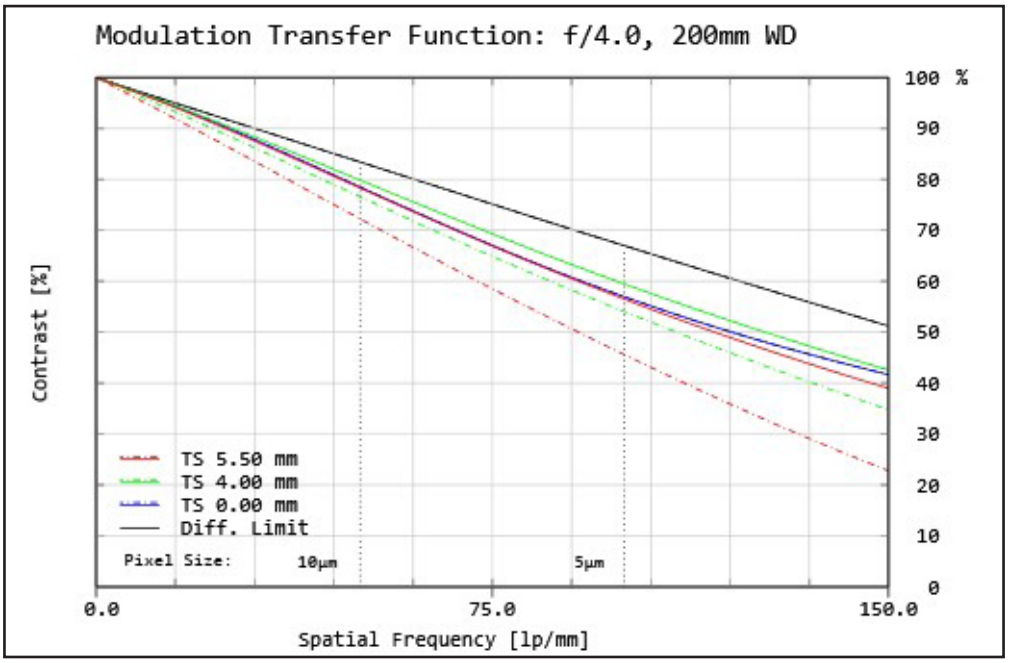


Figure 5: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for λ = 486nm to 656nm. Included are Tangential and Sagittal values for field points on center, at 70% of full field and at the maximum sensor format. Solid black line indicates diffraction limit determined by f/#-defined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

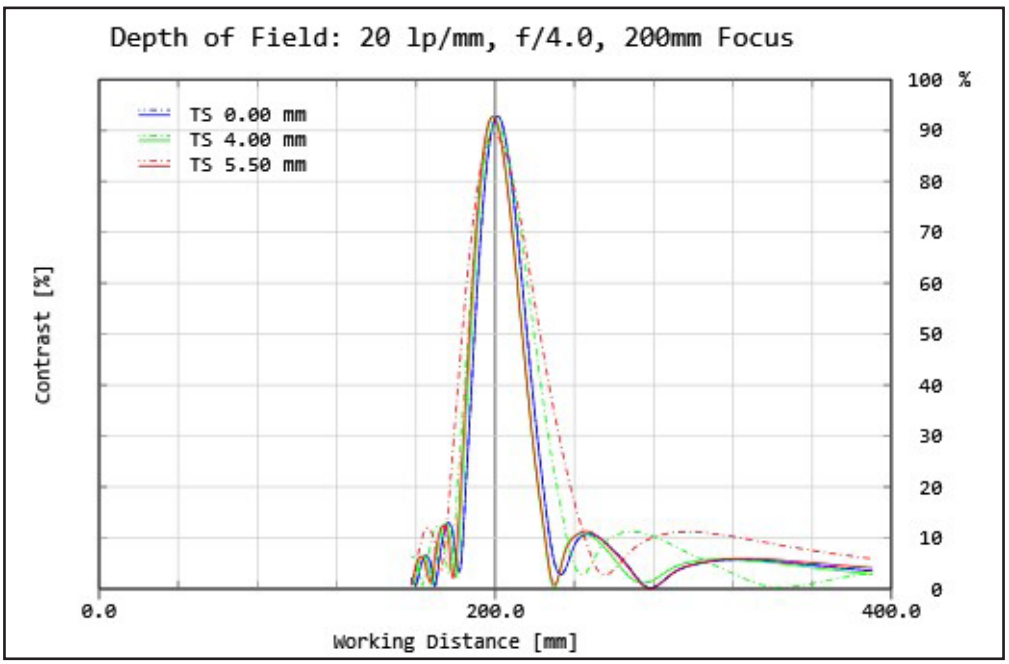


Figure 6: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). Contrast is plotted to two times the focus distance. Note object spatial frequency changes with working distance.

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TECHSPEC® COMPACT FIXED FOCAL LENGTH LENS
#59-871 • 25mm FL • f/1.4

MTF & DOF: f/2.8
WD: 500mm

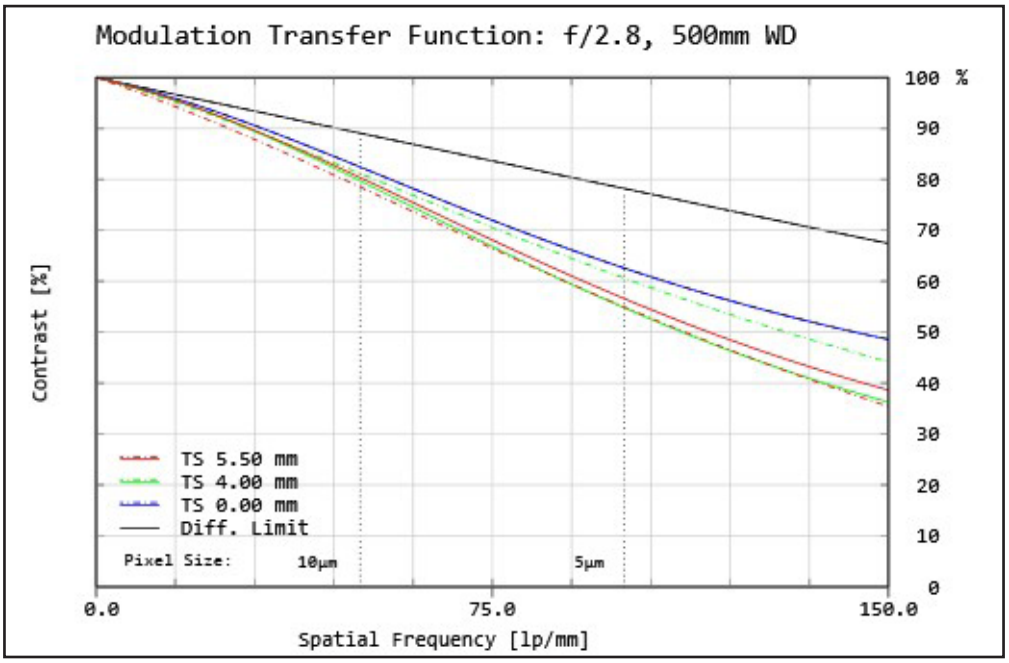


Figure 7: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for λ = 486nm to 656nm. Included are Tangential and Sagittal values for field points on center, at 70% of full field and at the maximum sensor format. Solid black line indicates diffraction limit determined by f/#-defined aperture. Frequencies corresponding to the Nyquist resolution limit of pixel sizes are indicated.

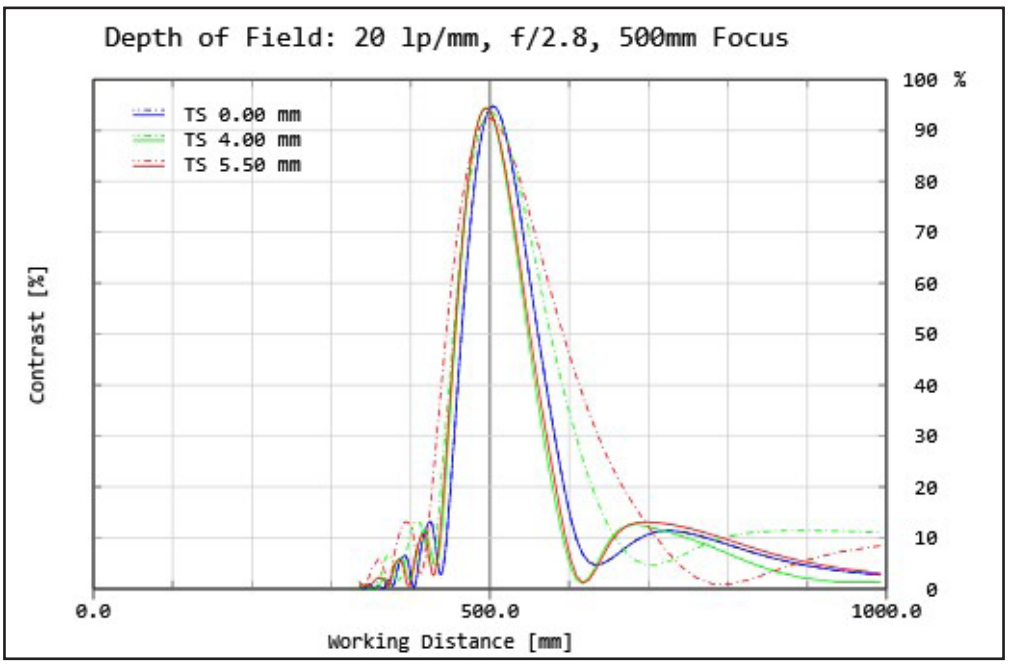


Figure 8: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). Contrast is plotted to two times the focus distance. Note object spatial frequency changes with working distance.

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MTF & DOF: f/4.0
WD: 500mm

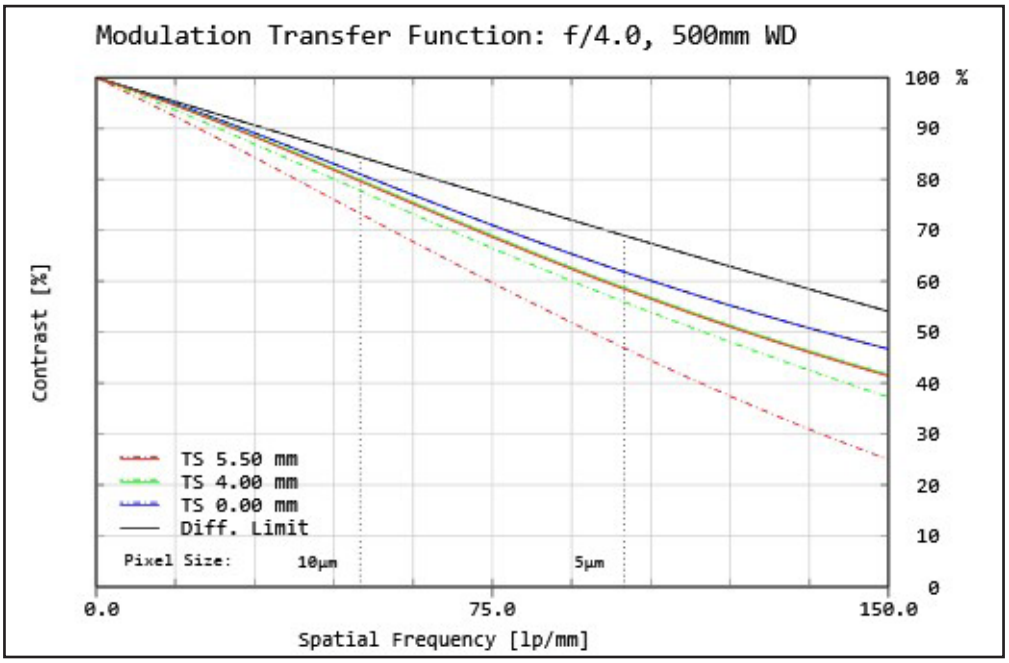


Figure 9: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for λ = 486nm to 656nm. Included are Tangential and Sagittal values for field points on center, at 70% of full field and at the maximum sensor format. Solid black line indicates diffraction limit determined by f/#-defined aperture. Frequencies corresponding to the Nyquist resolution limit of pixel sizes are indicated.

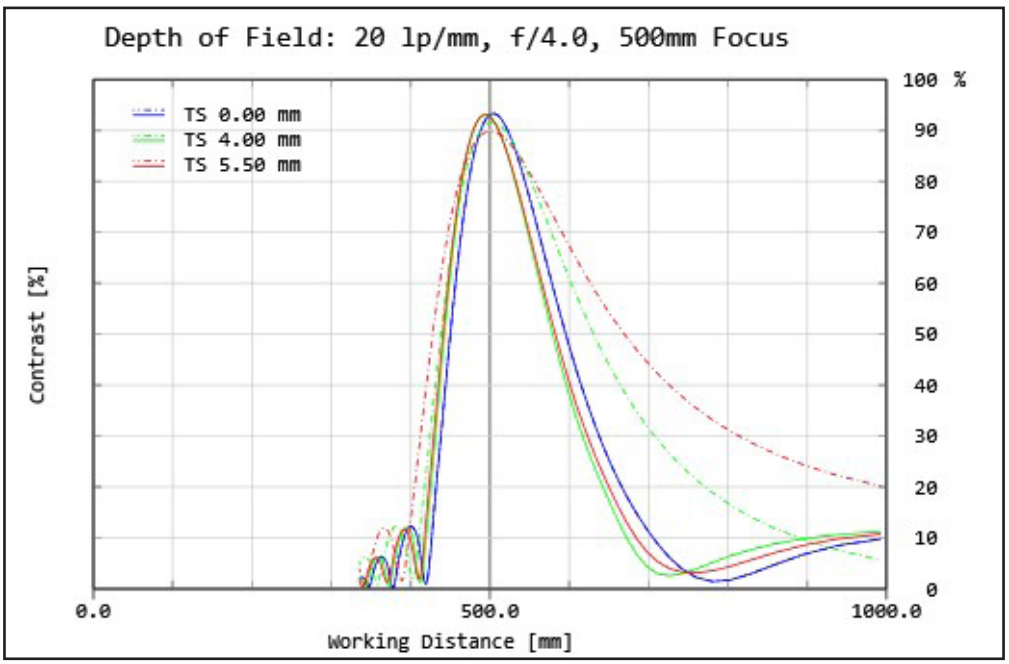


Figure 10: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). Contrast is plotted to two times the focus distance. Note object spatial frequency changes with working distance.

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