

TECHSPEC® HIGH RESOLUTION LENSES FOR 1" AND 4/3" SENSORS #86-571 • 16mm

TECHSPEC® HIGH RESOLUTION LENSES FOR 1" AND 4/3" SENSORS

Our TECHSPEC® High Resolution Lenses for 1" and 4/3" Sensors are designed for the harsh demands of industrial inspection applications and are ideal for use in factory automation, inspection or qualification. These fixed focal length lenses feature a locking focus and iris rings to prevent unwanted adjustments, and a front filter thread for integrating standard optical filters.



Focal Length:	16mm
Minimum Working Distance¹:	100mm
Focus Range¹ (lockable):	100mm – ∞
Length at Near Focus:	60.4mm
Length at Far Focus:	57.8mm
Filter Thread:	M46 x 0.75mm
Max. Sensor Format:	1"
Camera Mount:	C-mount

Aperture (f/#):	f/1.8 - f/16, lockable
Magnification Range:	0X – 0.13X
Distortion²:	<5%
Object Space NA²:	0.02
No. of Elements (Groups):	9 (7)
AR Coating:	¼λ, M, F ₂ @550nm
Weight:	195g

Sensor Size	½.5"	½"	¼.8"	⅔"	Sony ⅔"*	1"	1" Sq [†]	4/3"
Field of View³	43.4mm - 19.9°	48.8mm - 22.3°	55.0mm - 25.0°	67.5mm - 30.4°	64.7mm - 29.2°	99.9mm - 43.4°	87.1mm - 38.5°	NA

1. From front of housing 2. At 200mm W.D. 3. Horizontal FOV on standard 4:3 sensor format

†1" 1:1 aspect ratio sensor *6:5 aspect ratio Specifications subject to change

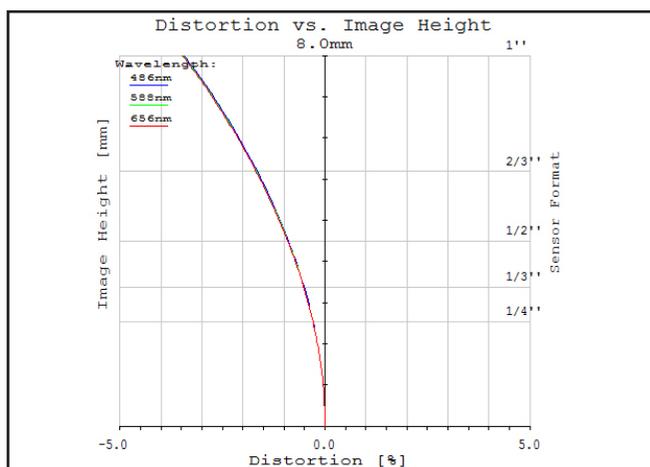


Figure 1: Distortion at the maximum sensor format. Positive values correspond to pincushion distortion, negative values correspond to barrel distortion.

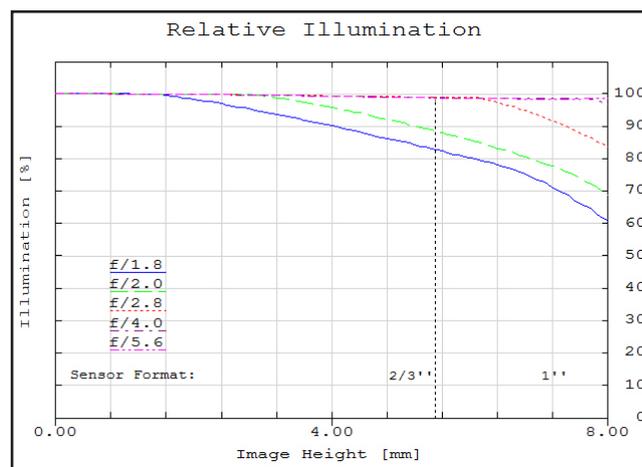


Figure 2: Relative illumination (center to corner)

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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MTF & DOF: f/2.8
 WD: 200mm

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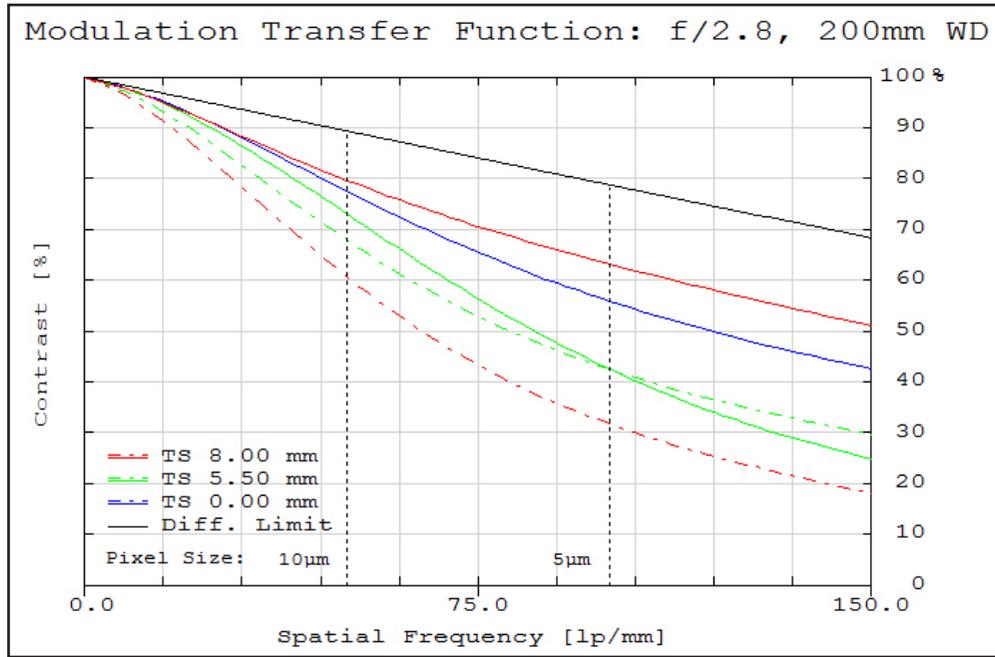


Figure 3: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for $\lambda = 486\text{nm}$ to 656nm . Included are Tangential and Sagittal values for field points on center, at 70% of full field and at the maximum sensor format. Solid black line indicates diffraction limit determined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

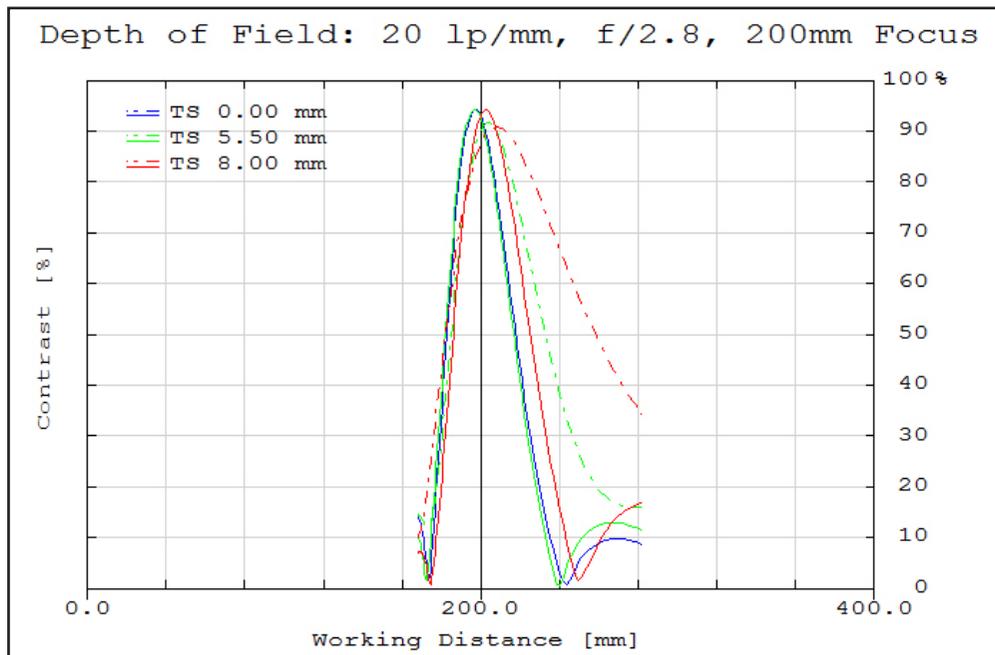


Figure 4: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). Contrast is plotted to two times the focus distance. Note object spatial frequency changes with working distance.

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WD: 200mm

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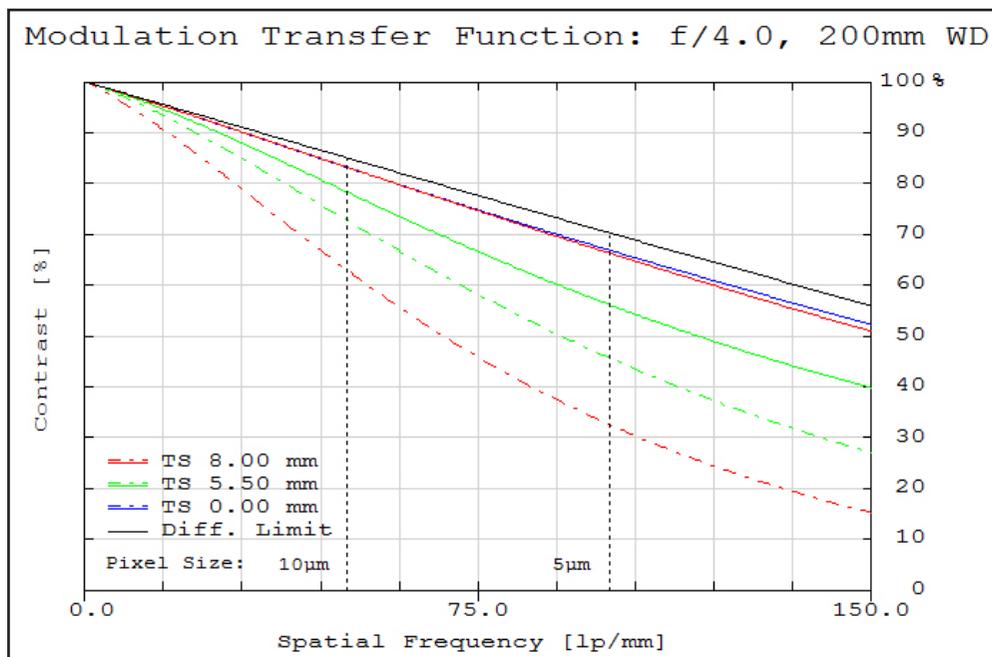


Figure 5: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for $\lambda = 486\text{nm}$ to 656nm . Included are Tangential and Sagittal values for field points on center, at 70% of full field and at the maximum sensor format. Solid black line indicates diffraction limit determined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

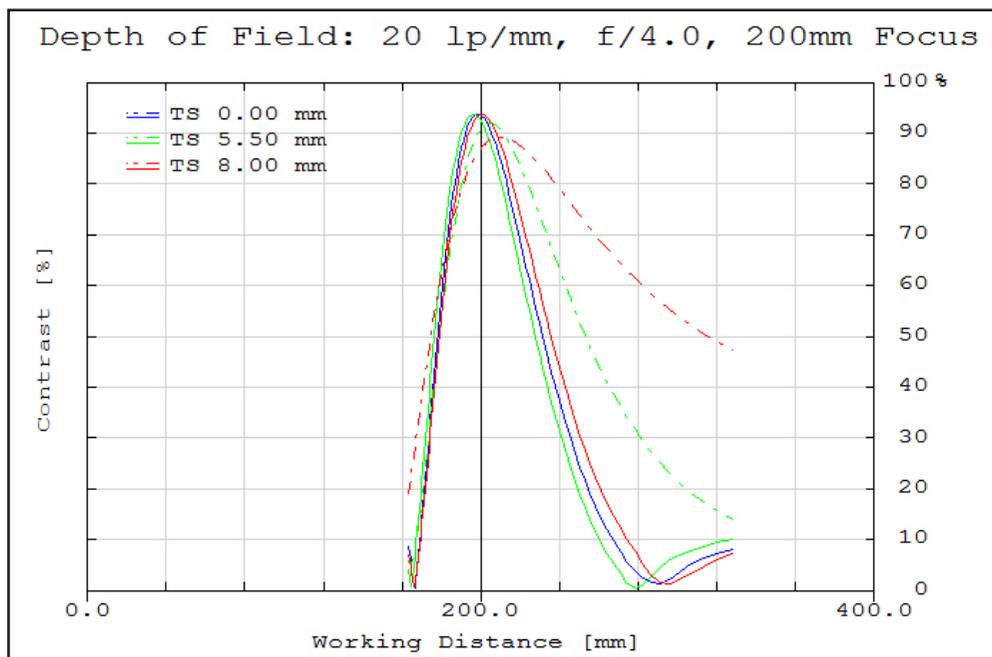


Figure 6: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). Contrast is plotted to two times the focus distance. Note object spatial frequency changes with working distance.

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MTF & DOF: f/2.8
 WD: 500mm

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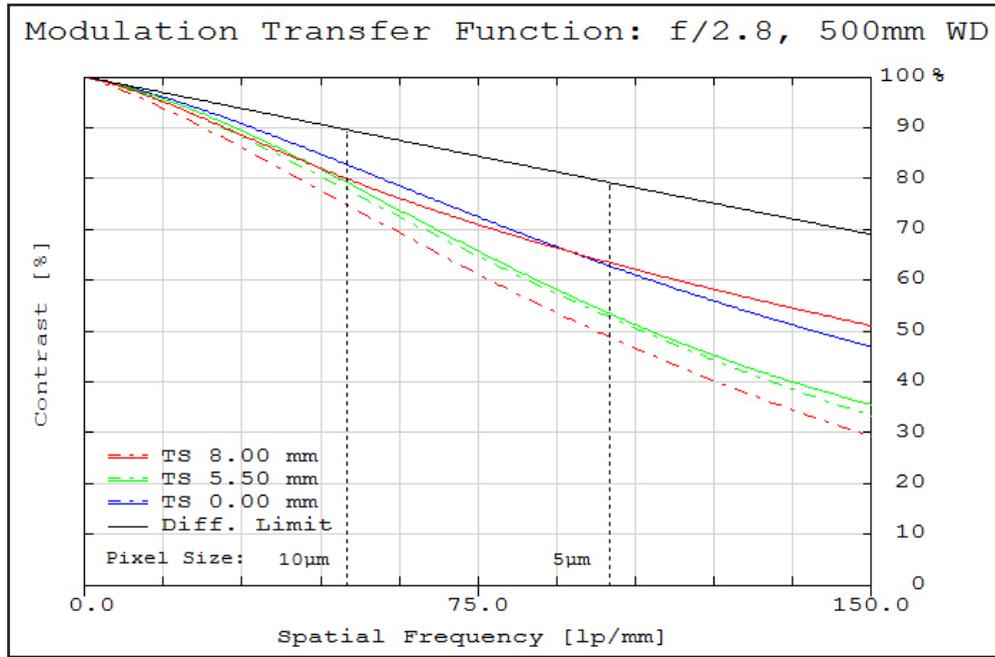


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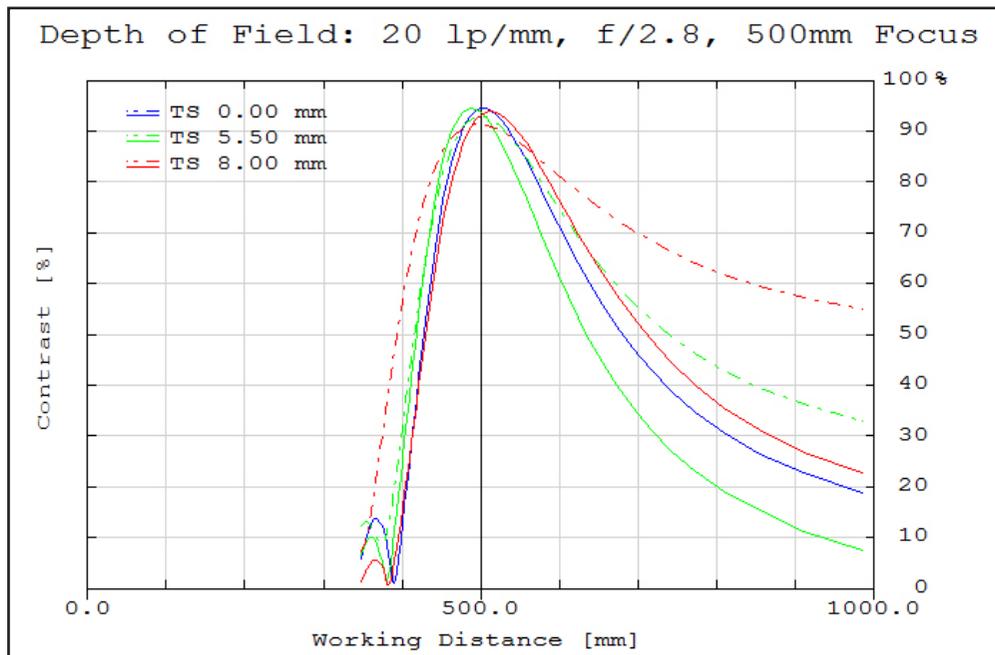


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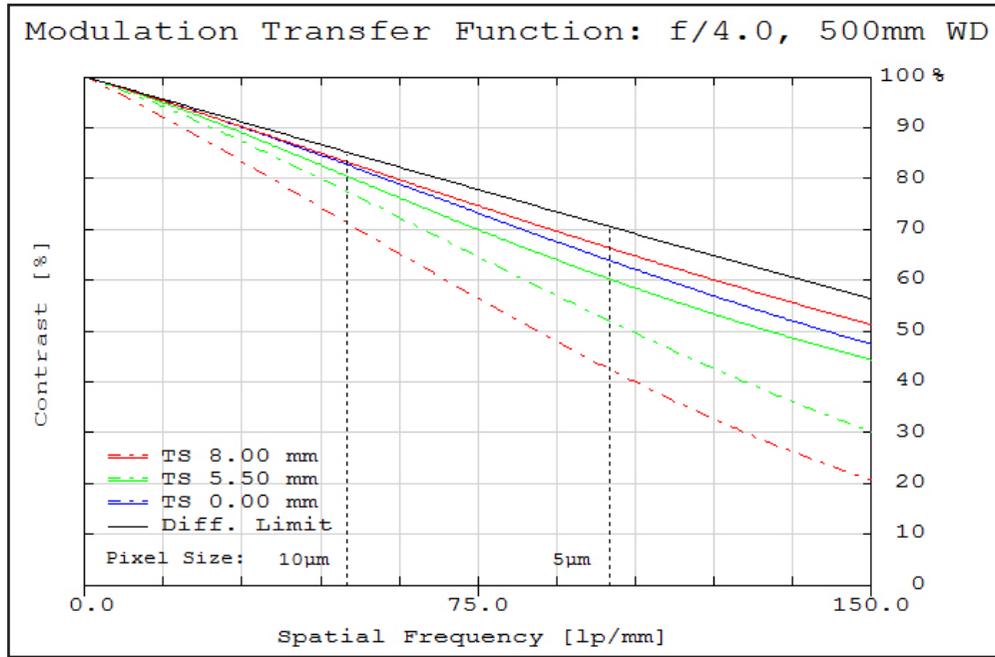


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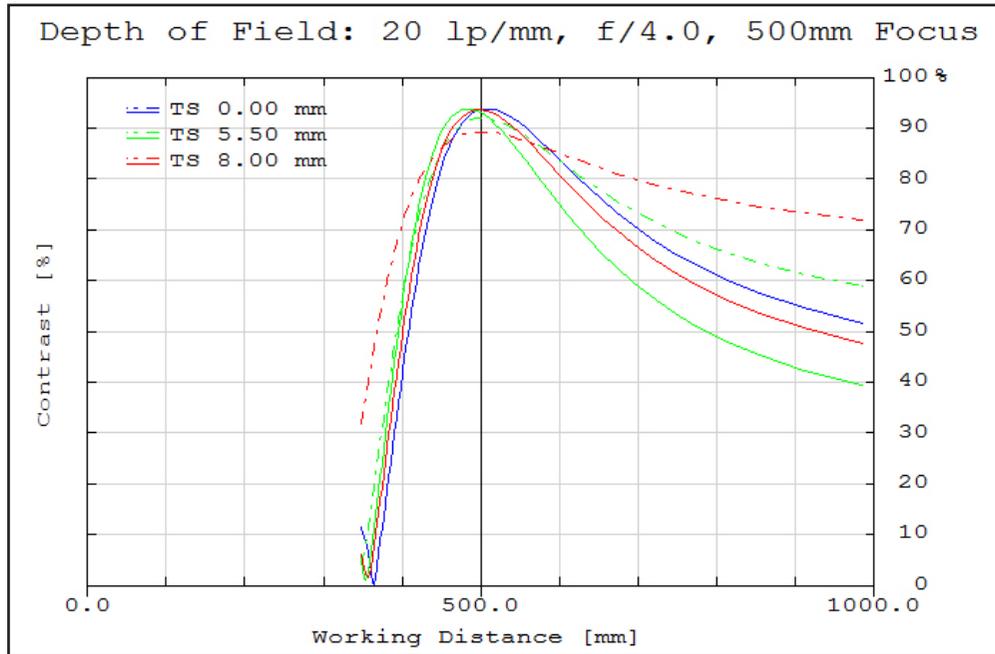


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