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TECHSPEC® FOCUSABLE DOUBLE GAUSS IMAGING LENS #54-857 • 18mm FL • f/4

Our TECHSPEC® Double Gauss lenses provide high-performance, compact size and exceptional value. Their expanded performance yields image resolution greater than 100 lp/mm on up to a 1.3" sensor. The focus ring and manual iris can lock in place with the included thumbscrews. Set screws are also included to facilitate a low profile integration in machine vision applications. Mechanical design also allows the focusing movement to be motorized by the user.



Focal Length:	18mm
Minimum Working Distance[1]:	210mm
Focus Range[1] (lockable):	210mm – ∞
Length:	32.3mm
Max. Rear Protrusion:	2.5mm
Filter Thread:	M30.5 x 0.5
Max. Sensor Format:	14.3mm
Camera Mount:	C-mount

Aperture (f/#):	f/4 - f/12
Magnification Range:	0X – 0.08X
Distortion[2]:	<2%
Object Space NA[2]:	0.0097
No. of Elements (Groups):	6 (4)
AR Coating:	1/4λ. MgF_2 @ 550nm
Weight:	227g

Sensor Size	½.5"	½"	⅓.8"	⅔"	Sony ⅔" *	1"	1" Sq †	⅘"
Field of View[3]	70.2mm - 17.5°	78.8mm - 19.6°	88.8mm - 22.0°	108.7mm - 26.8°	104.3mm - 25.8°	159.2mm - 38.4°	139.5mm - 34.0°	NA

1. From front of housing 2. At Min Working Distance 3. Horizontal FOV on standard 4:3 sensor format *6:5 aspect ratio † 1:1 aspect ratio Specifications subject to change

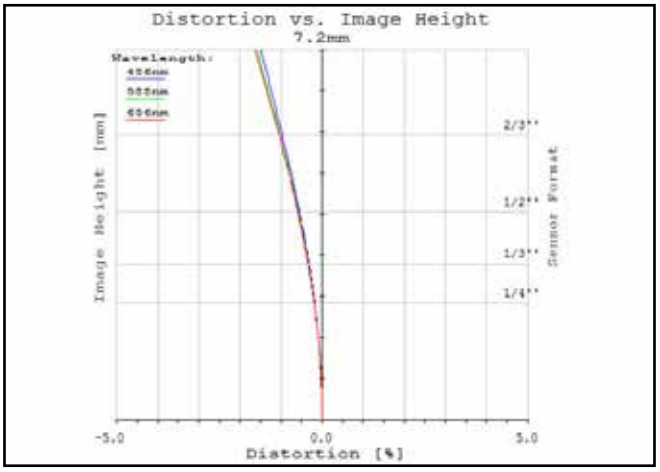


Figure 1: Distortion at the maximum sensor format. Postive values correspond to pincushion distortion, negative values correspond to barrel distortion.

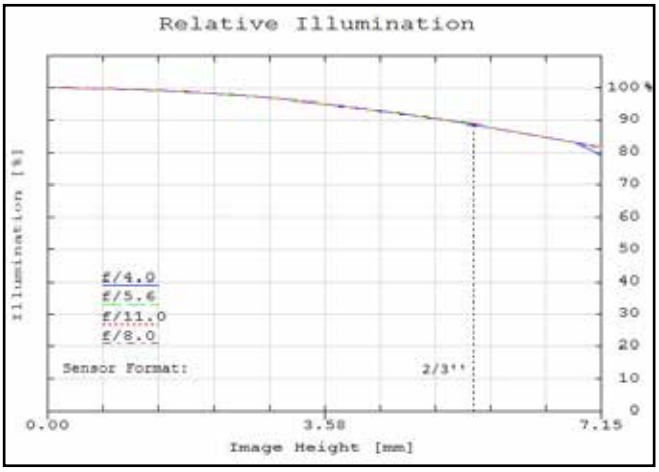


Figure 2: Relative illumination (center to corner)

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® FOCUSABLE DOUBLE GAUSS IMAGING LENS #54-857 • 18mm FL • f/4

MTF & DOF: f/4.0
WD: 210mm

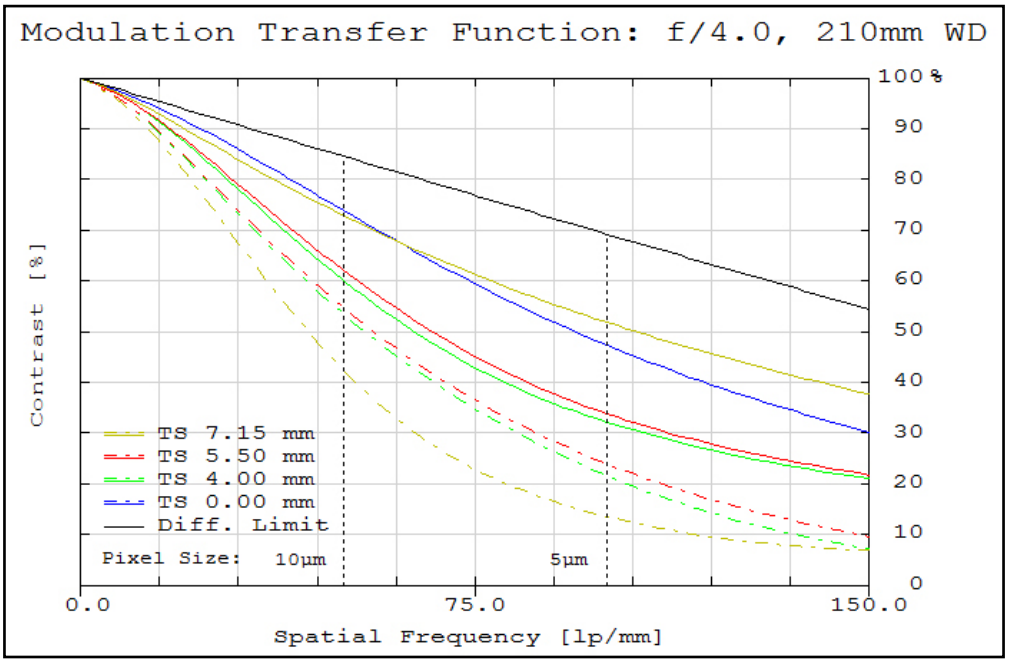


Figure 3: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for λ = 486nm to 656nm. Included are Tangential and Sagittal values for field points on center, at 70% of full field and at the maximum sensor format. Solid black line indicates diffraction limit determined by f/#-defined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

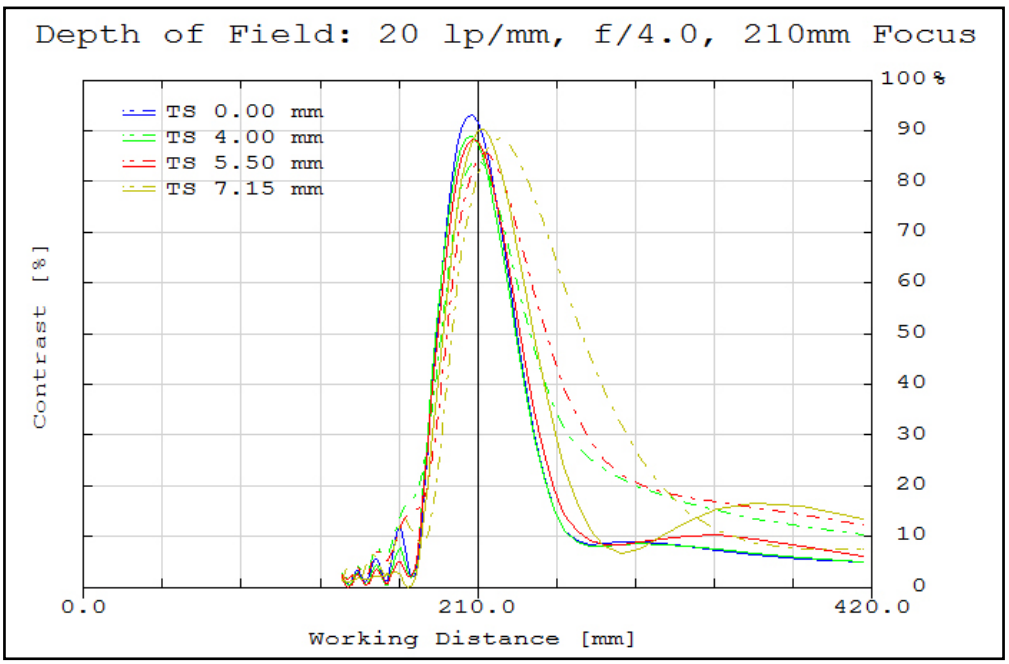


Figure 4: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). Contrast is plotted to two times the focus distance. Note object spatial frequency changes with working distance.

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

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TECHSPEC® FOCUSABLE DOUBLE GAUSS IMAGING LENS #54-857 • 18mm FL • f/4

MTF & DOF: f/4.0
WD: 500mm

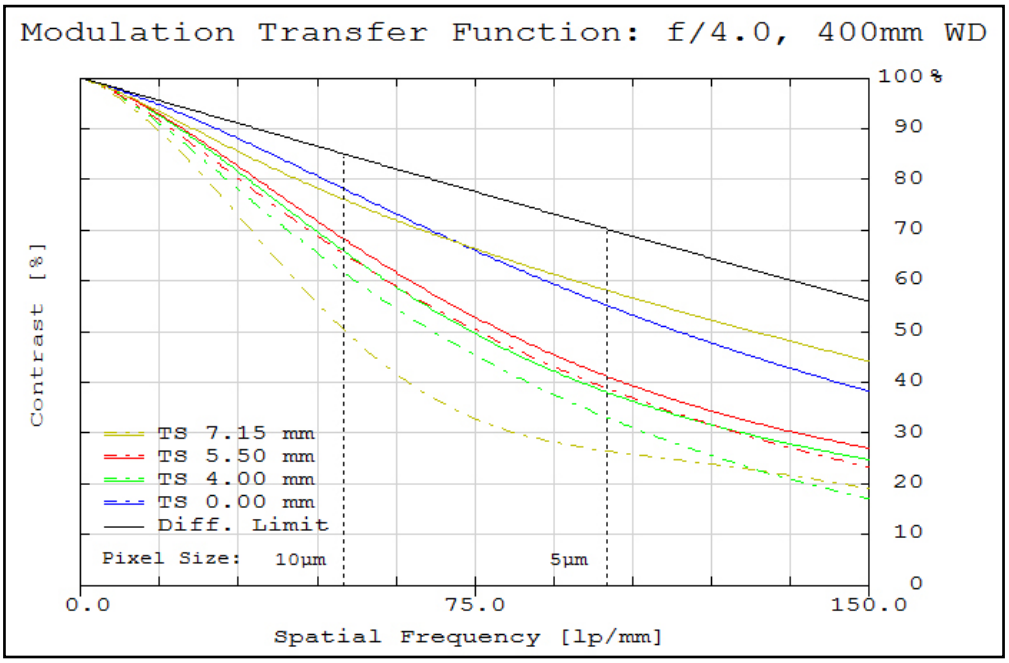


Figure 5: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for λ = 486nm to 656nm. Included are Tangential and Sagittal values for field points on center, at 70% of full field and at the maximum sensor format. Solid black line indicates diffraction limit determined by f/#-defined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

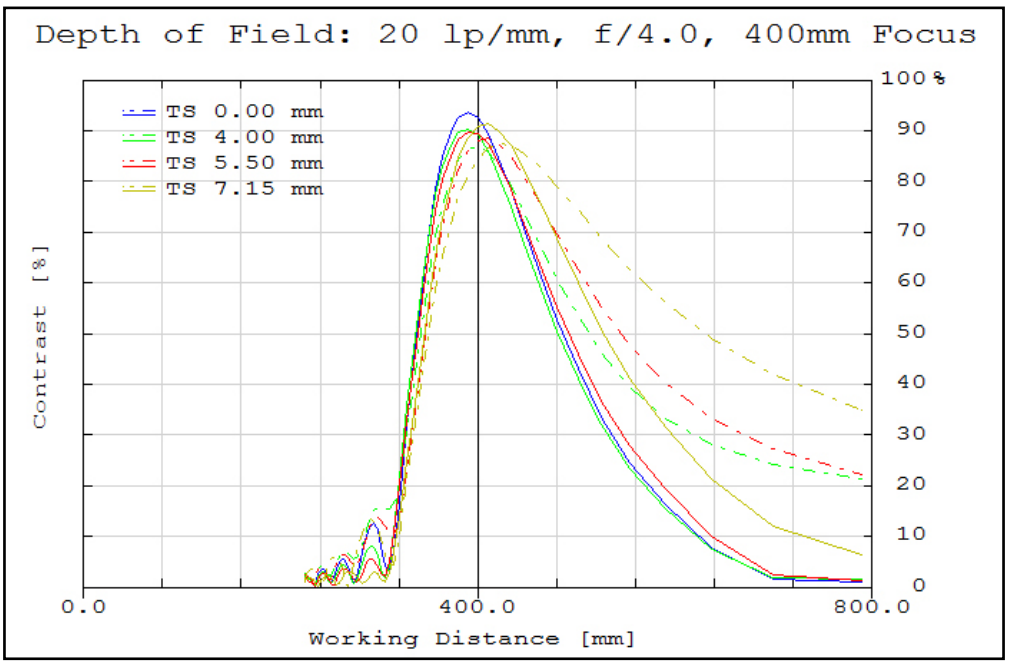


Figure 6: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). Contrast is plotted to two times the focus distance. Note object spatial frequency changes with working distance.

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

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