TECHSPEC® SILVER SERIES TELECENTRIC LENS

#58-430 • 83mm WD • 1.0X

Our TECHSPEC® Silver Series Telecentric Measuring Lenses offer a compact, cost-effective solution for replacing standard fixed focal length lenses. Telecentric lenses are ideal for both on-line and off-line machine vision production environments that require accurate measurements. Edmund Optics has designed this series of machine vision lenses to specifically replace lenses that give inaccurate or inconsistent readings. Telecentric lenses correct perspective errors that yield variations in magnification through the depth of field.

Primary Magnification:	1.0X
Working Distance[1]:	83mm ±3mm
Depth of Field[2]:	±0.5mm at f10 (20% @ 20 lp/mm)
Length:	151.2mm
Filter Thread:	M37 x 0.75
Max. Sensor Format:	⅔"
Camera Mount:	C-Mount

Telecentricity:	<0.1°
Distortion:	<0.3%
Resolution[2]:	>40% @ 40 lp/mm
Aperture (f/#):	f/6 - f/22
Object Space NA:	0.082
Number of Elements (Groups):	6 (5)
AR Coating:	425 - 675nm BBAR
Weight:	193g

Sensor Size	¼"	⅓"	½.5"	½"	⅓.8"	⅔"	1"	4⁄3"
Field of View[3]	3.6mm	4.8mm	5.7mm	6.4mm	7.2mm	8.8mm	N/A	N/A

1. From front of housing 2. Image space MTF contrast 3. Horizontal FOV on standard 4:3 sensor format

Specifications subject to change

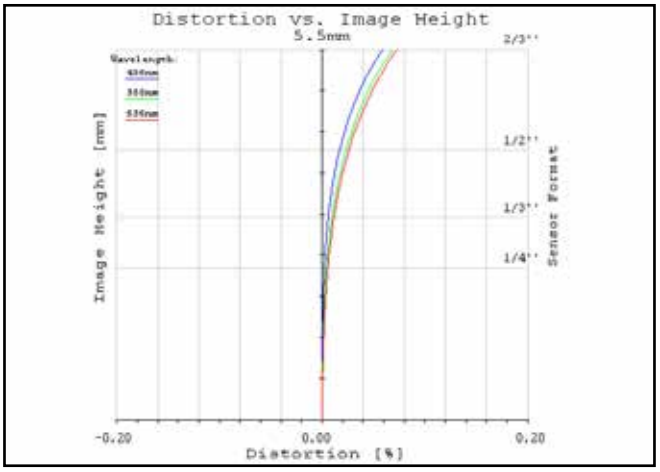

Figure 1: Distortion at the maximum sensor format. Positive values correspond to pincushion distortion, negative values correspond to barrel distortion.

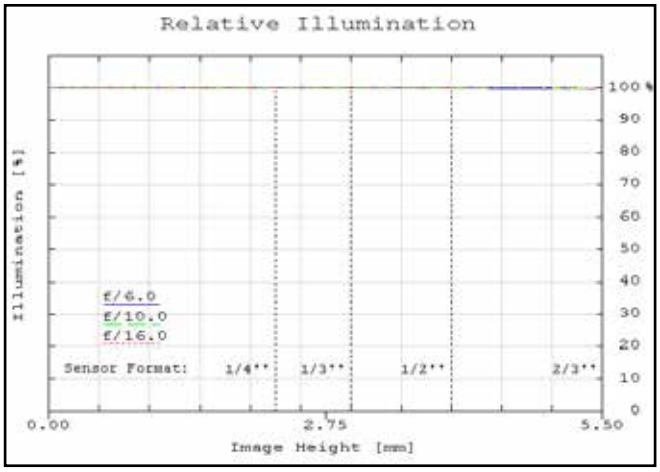

Figure 2: Relative illumination (center to corner)

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/6.0

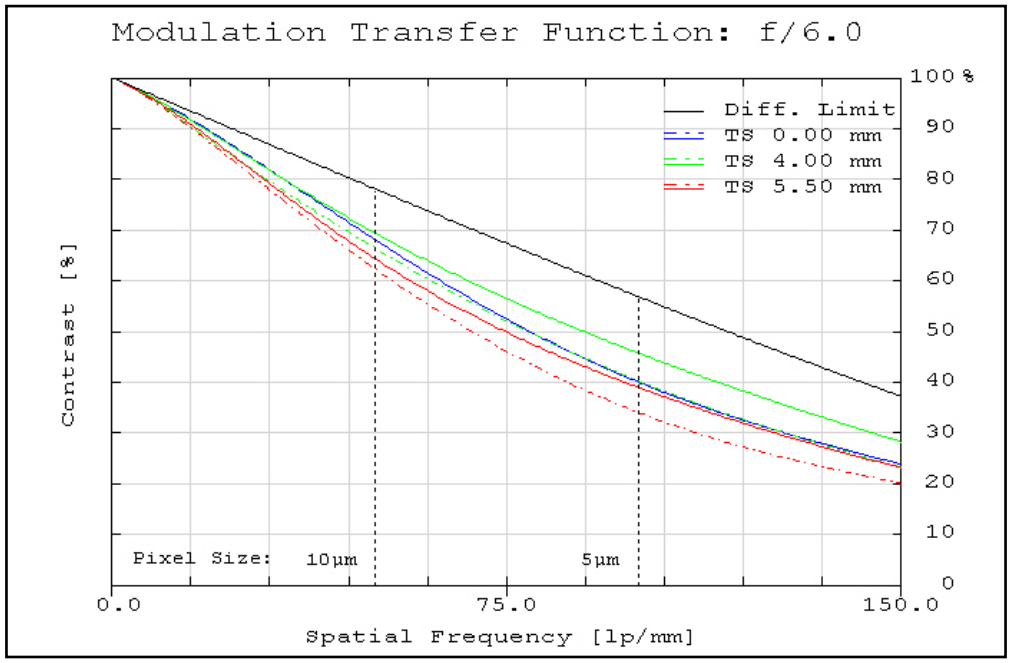

Figure 3: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for λ = 486nm to 656nm. Included are Tangential and Sagittal values for field points on center, at 70% of full field and at the maximum sensor format. Solid black line indicates diffraction limit determined by f/#-defined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

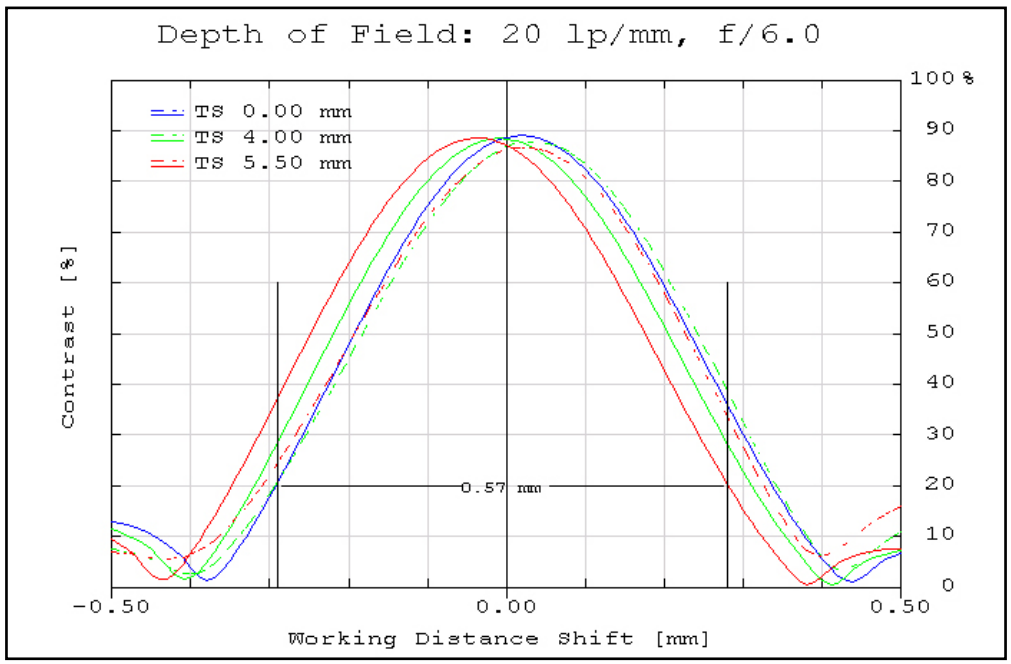

Figure 4: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). The depth of field at the maximum sensor format for the plotted frequency and f/# at 20% contrast is indicated by the measurement bars.

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MTF & DOF: f/10.0

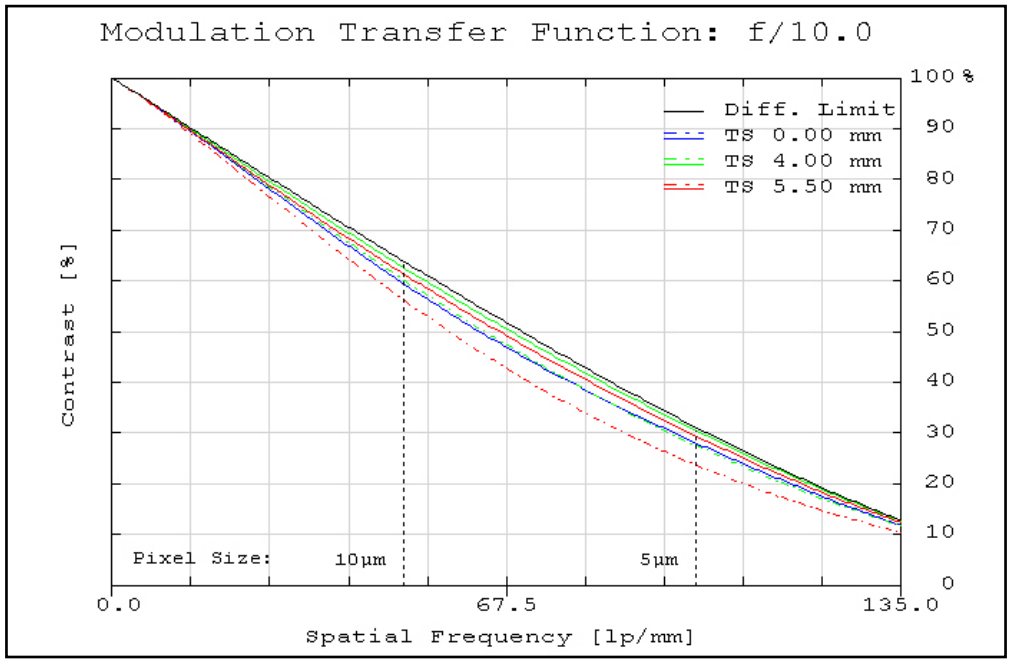

Figure 5: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for λ = 486nm to 656nm. Included are Tangential and Sagittal values for field points on center, at 70% of full field and at the maximum sensor format. Solid black line indicates diffraction limit determined by f/#-defined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

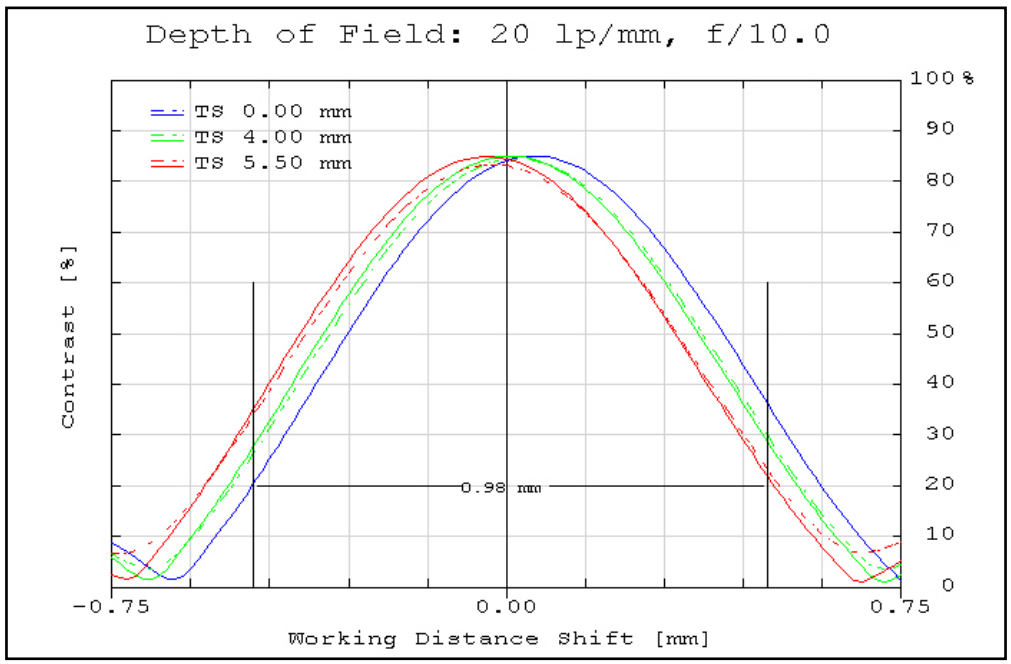

Figure 6: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). The depth of field at the maximum sensor format for the plotted frequency and f/# at 20% contrast is indicated by the measurement bars.

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