

# TECHSPEC® IN-LINE COMPACT TELECENTRIC LENS

## #67-322 • 40mm WD • 4.0X

Our TECHSPEC® In-Line Compact Telecentric Lenses were designed with customer requirements in mind. Featuring large maximum sensor formats and a number of different working distance/magnification options, the TECHSPEC® In-Line Compact Telecentric Lenses are perfect for many applications. From single unit inspection stations, to high volume implementation, these Compact Telecentric Lenses are engineered to provide the specifications you need at a competitive price point.



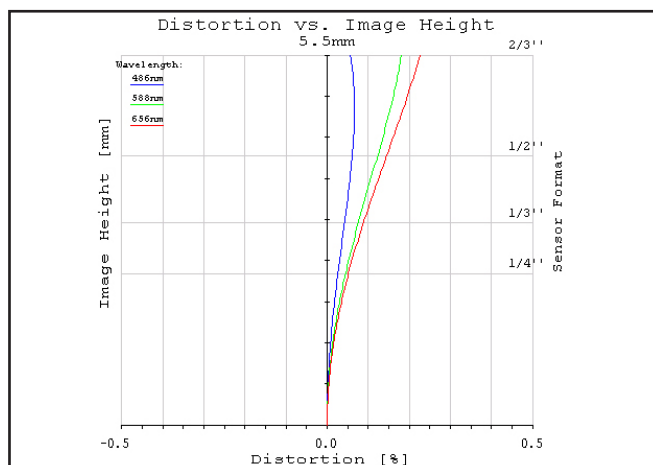
<b>Primary Magnification:</b>	4.0X
<b>Working Distance<sup>1</sup>:</b>	40mm ±1mm
<b>Depth of Field<sup>2</sup>:</b>	±0.05mm (20% @ 20 lp/mm)
<b>Length:</b>	50.26mm
<b>Filter Thread:</b>	M16 x 0.5
<b>Max. Sensor Format:</b>	2/3"
<b>Camera Mount:</b>	C-Mount

<b>Telecentricity:</b>	<0.2°
<b>Distortion:</b>	<0.2%
<b>Aperture (f/#):</b>	f/20, fixed
<b>Object Space NA:</b>	0.099
<b>Number of Elements (Groups):</b>	5 (3)
<b>AR Coating:</b>	425 - 675nm BBAR
<b>Weight:</b>	60g

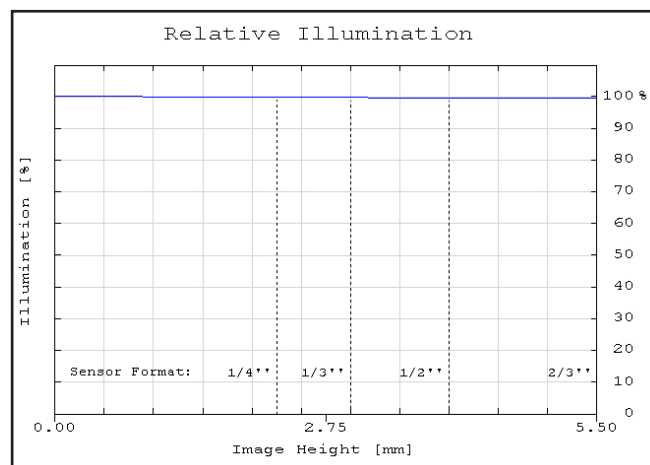
<b>Sensor Size</b>	1/4"	1/3"	1/2.5"	1/2"	1/1.8"	2/3"	1"	4/3"
<b>Field of View<sup>3</sup></b>	0.9m	1.2mm	1.4mm	1.6mm	1.8mm	2.2mm	N/A	N/A

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.

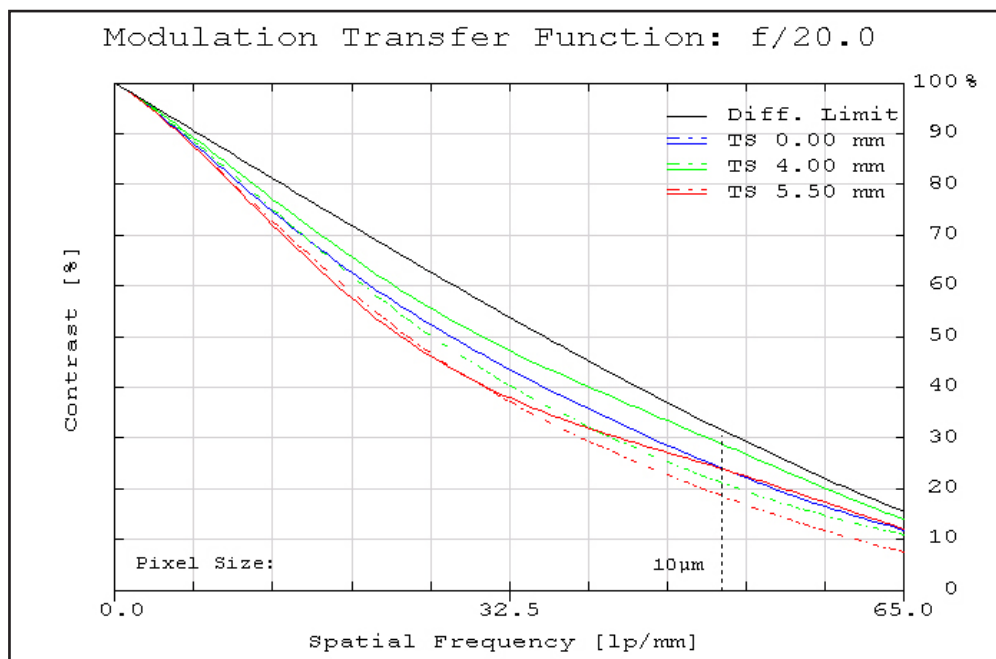


**Figure 2:** Relative illumination (center to corner)

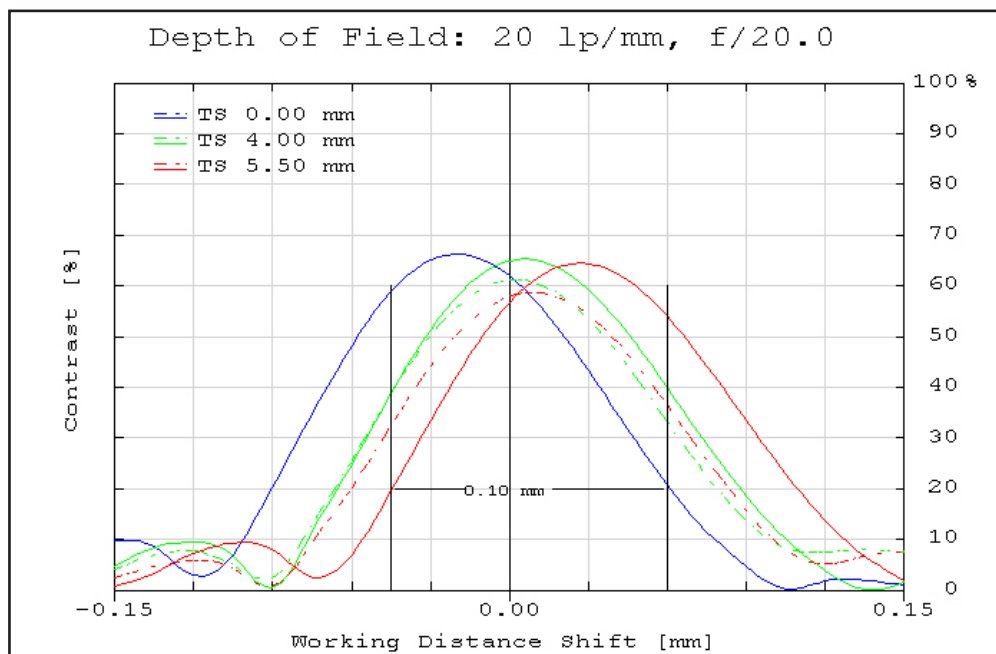
In both plots, field points corresponding to the image circle of common sensor formats are included. Plots represent theoretical values from lens design software. Actual lens performance varies due to manufacturing tolerances.

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**Figure 3:** Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for  $\lambda = 486\text{nm}$  to  $656\text{nm}$ . 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.

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