

TECHSPEC® SilverTL™ SERIES

FIXED FOCAL LENGTH LENSES

#88-348 • f/10 - f/22



TECHSPEC® SilverTL™ Telecentric Lenses are ideal for both on-line and off-line machine vision production applications that require accurate measurements. These lenses combine high quality optics with a simplified non-focusing mechanical design and adjustable iris with a locking set screw.

Primary Magnification:	2X
Working Distance¹:	75mm
Depth of Field²:	±0.13mm at f/10 (20% @ 20 lp/mm)
Max. Sensor Format:	2/3"
Camera Mount:	C-Mount
Aperture (f/#):	f/10 - f/22
Distortion %:	<0.065%
Object Space NA:	0.100

Telecentricity:	<0.08°
Type:	Telecentric Lens
Length:	144.6mm
Front Diameter:	45mm
Weight:	314g
RoHS:	Compliant
Number of Elements (Groups):	8 (7)
AR Coating:	425 - 675nm BBAR

1. From front housing 2. Image space MTF contrast

At Minimum W.D. (75mm)						
Sensor Size	1/4"	1/3"	1/2.5"	1/2"	1/1.8"	2/3"
Field Of View³	1.8mm	2.4mm	2.9mm	3.2mm	3.6mm	4.4mm

3. Horizontal FOV on Standard (4:3) sensor format. Min W.D.

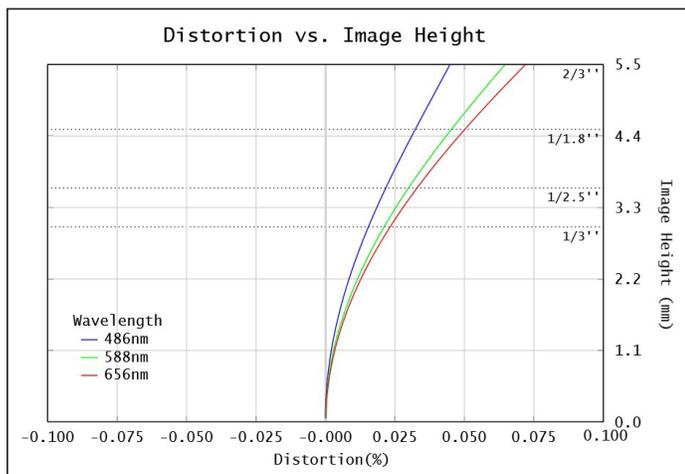


Figure 1: Distortion at the maximum sensor format. Positive values correspond to pincushion distortion, negative values correspond to barrel distortion.

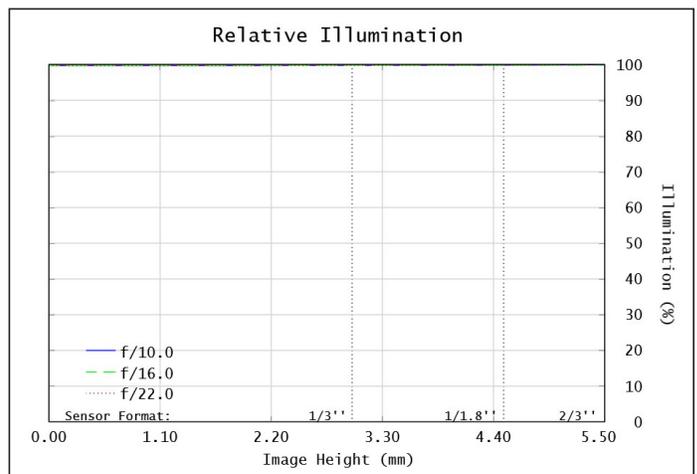


Figure 2: Relative illumination (center to corner)

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.

MTF & DOF: f/10.0

WD: 75mm

HORIZONTAL FOV: 4.4mm

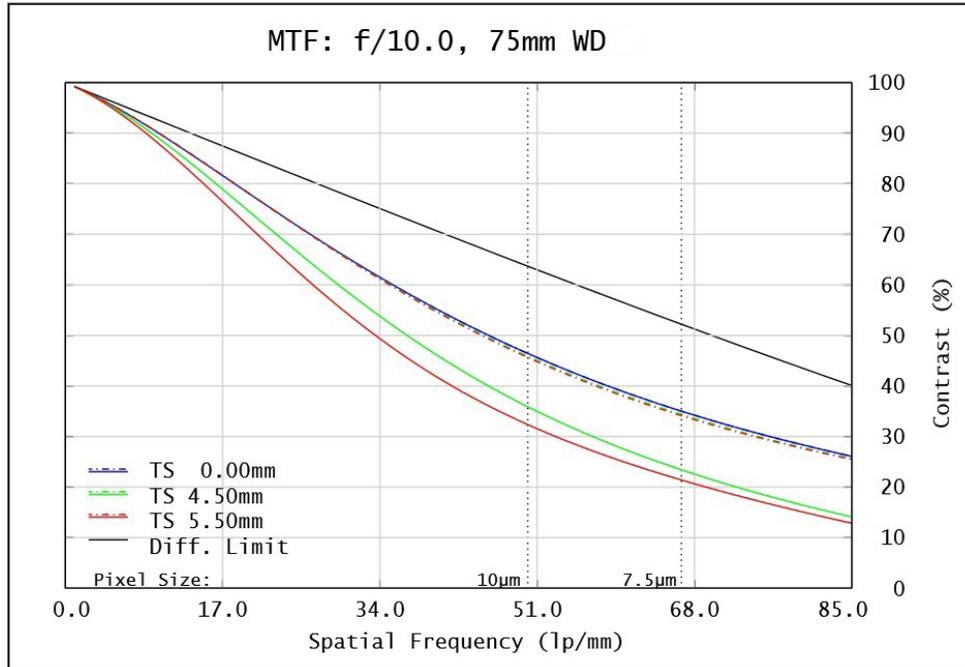


Figure 3: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for $\lambda = 486\text{nm}$ to 656nm . Included are the Tangential and Sagittal values for field points on center, at 70% of full field and the maximum sensor format. Solid black line indicates diffraction limit determined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

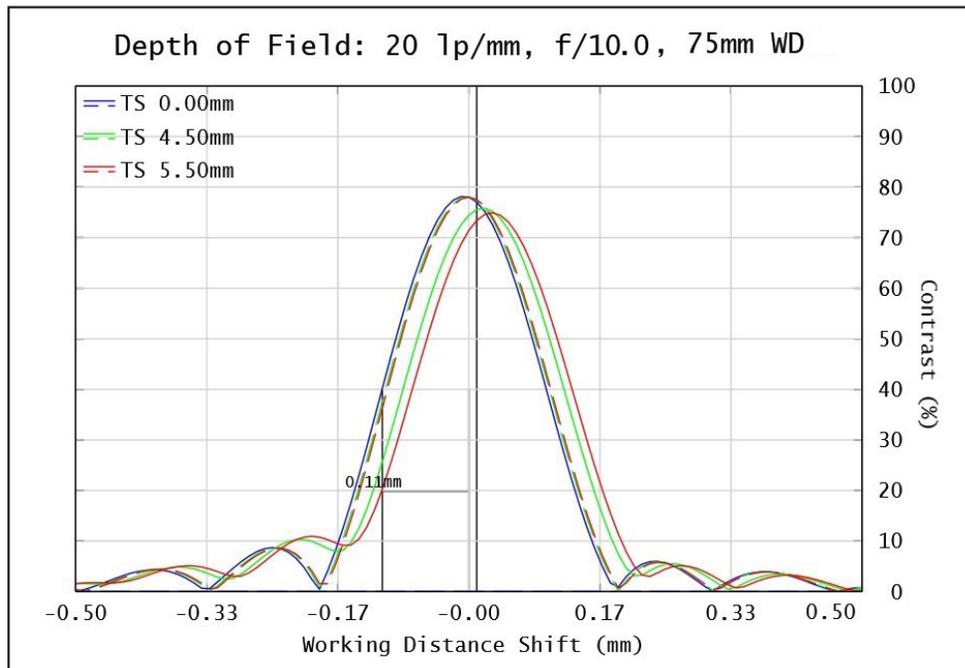


Figure 4: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). Contrast is plotted to two times the focus distance. Note object spatial frequency changes with working distance.

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

MTF & DOF: f/16.0

WD: 75mm

HORIZONTAL FOV: 4.4mm

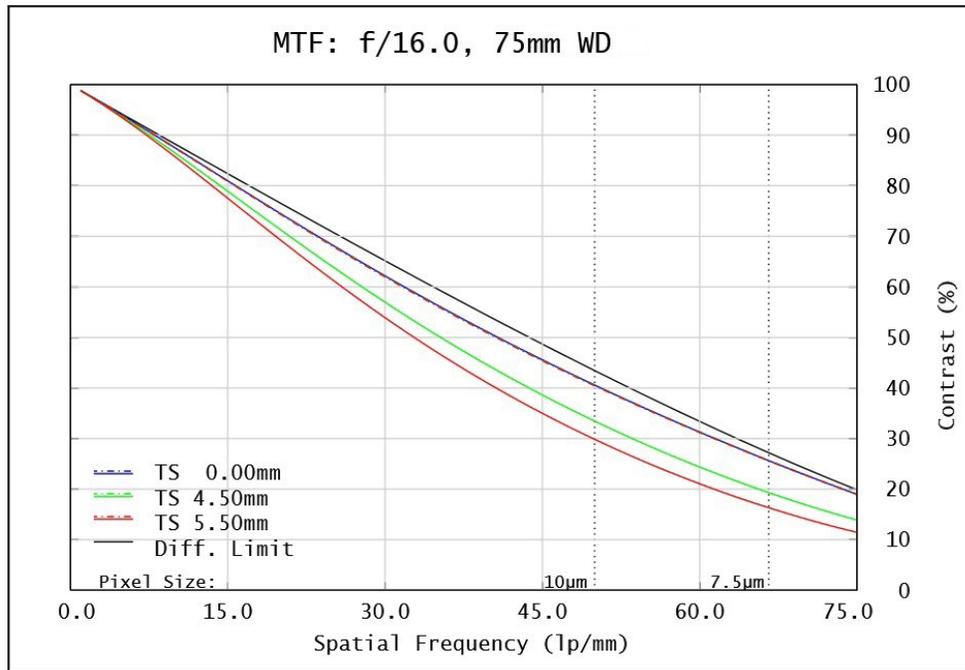


Figure 5: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for $\lambda = 486\text{nm}$ to 656nm . Included are the Tangential and Sagittal values for field points on center, at 70% of full field and the maximum sensor format. Solid black line indicates diffraction limit determined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

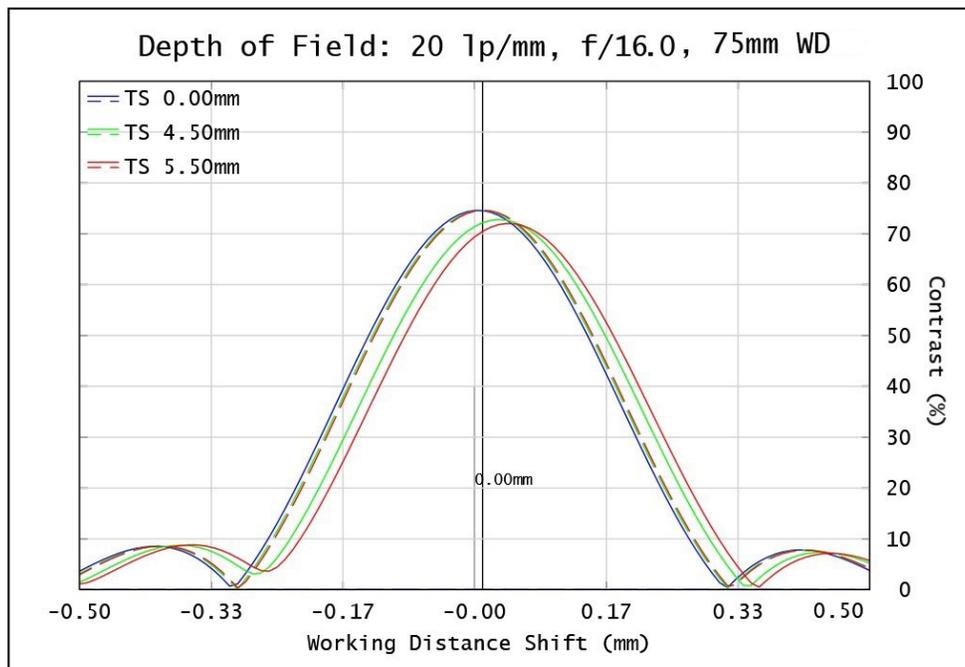


Figure 6: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). Contrast is plotted to two times the focus distance. Note object spatial frequency changes with working distance.

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

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