TECHSPEC® HPi SERIES
FIXED FOCAL LENGTH LENSES
#33-815 • 16mm • f/2.8

Designed for instrumentation imaging applications, TECHSPEC® HPi Series Fixed Focal Length Lenses offer a variety of fixed aperture options and up to 9 MP resolution. The simplified mechanical components allow for a compact size and cost reduction, making them ideal for a variety of applications. An adjustable, lockable focus feature allows for setting and locking the best focus position for instrumentation integration.

Focal Length:	16mm
Working Distance[1]:	100mm - ∞
Max. Sensor Format:	1"
Camera Mount:	C-Mount
Aperture (f/#):	f/2.8
Distortion %[2]:	<5.25%
Object Space NA[2]:	0.022715

Magnification Range:	0X - 0.131X
Type:	Fixed Focal Length Lens
Length:	60.2mm
Weight:	117g
RoHS:	Compliant
Number of Elements (Groups):	9 (7)
AR Coating:	MgF_2 (400-700nm)

1. From front housing 2. At Minimum W.D.

At Minimum W.D. (100mm)							
Sensor Size	1/4"	1/3"	1/2.5"	1/2"	1/1.8"	2/3"	1"
Field Of View[3]	27.6mm - 12.5°	36.9mm - 16.6°	44.7mm - 20.0°	49.4mm - 22.1°	55.7mm - 24.8°	68.4mm - 30.1°	101.3mm - 43.2°

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

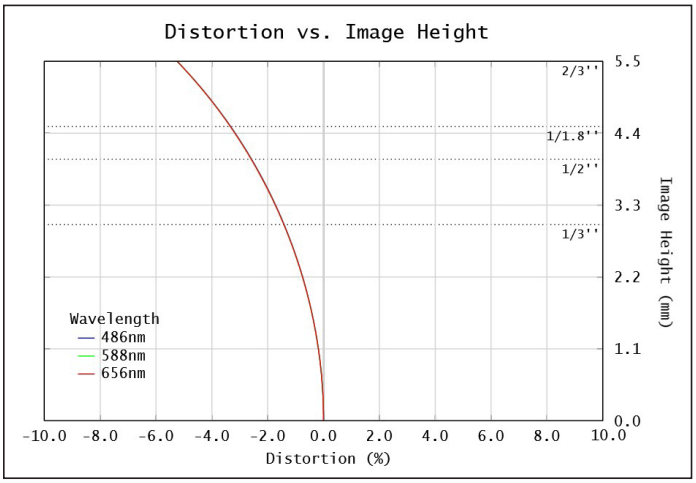

Figure 1: Distortion at the maximum sensor format. Positive values correspond to pincushion distortion, negative values correspond to barrel distortion.

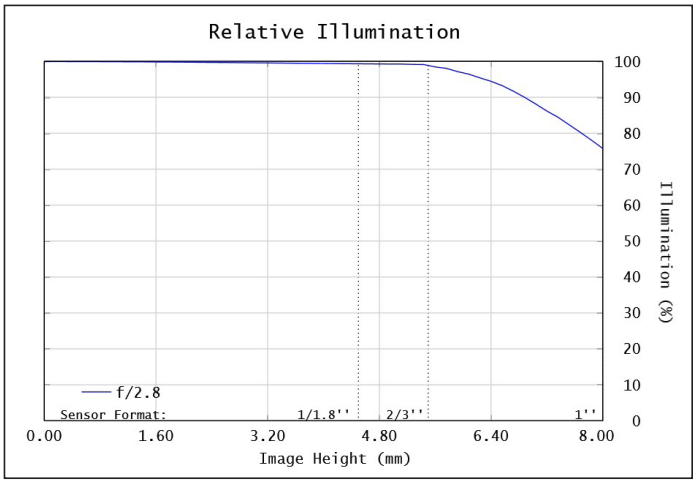

Figure 2: Relative illumination (center to corner)

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/2.8
WD: 476mm
HORIZONTAL FOV: 200mm

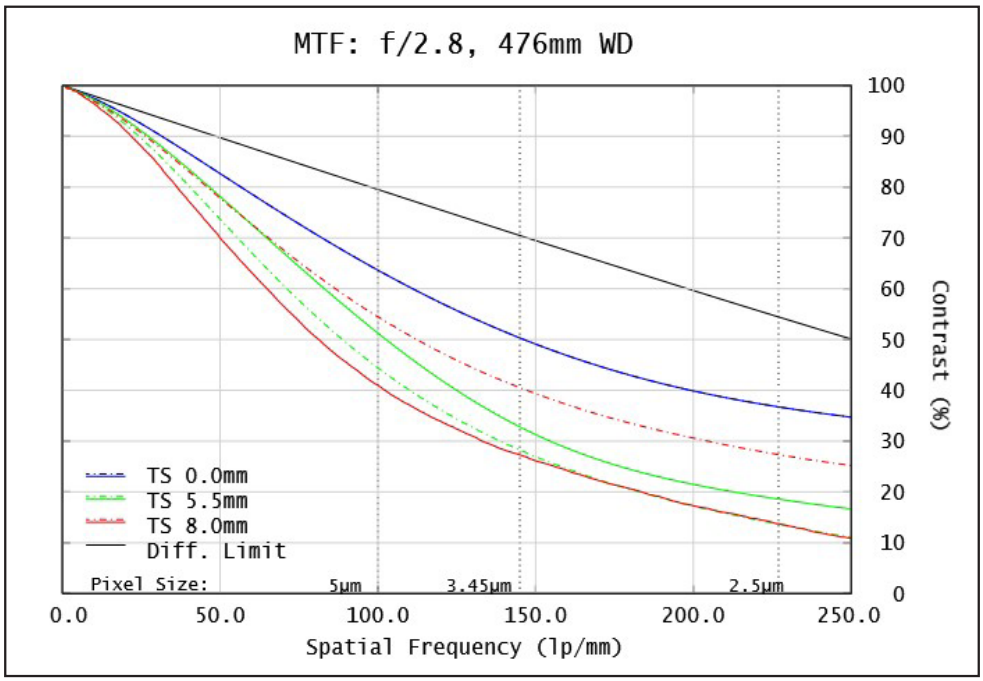

Figure 3: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for λ = 486nm to 656nm. Included are the Tangential and Sagittal values for field points on center, at 70% of full field and the maximum sensor format. Solid black line indicates diffraction limit determined by f/#-defined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

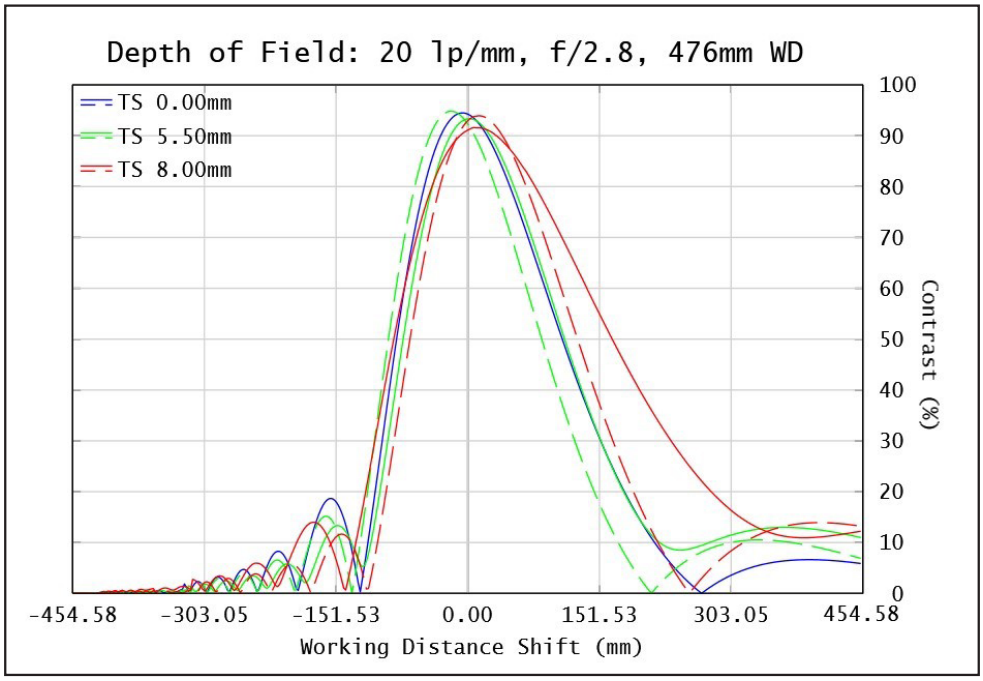

Figure 4: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). Contrast is plotted to two times the focus distance. Note object spatial frequency changes with working distance.

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

MTF & DOF: f/2.8
WD: 982mm
HORIZONTAL FOV: 800mm

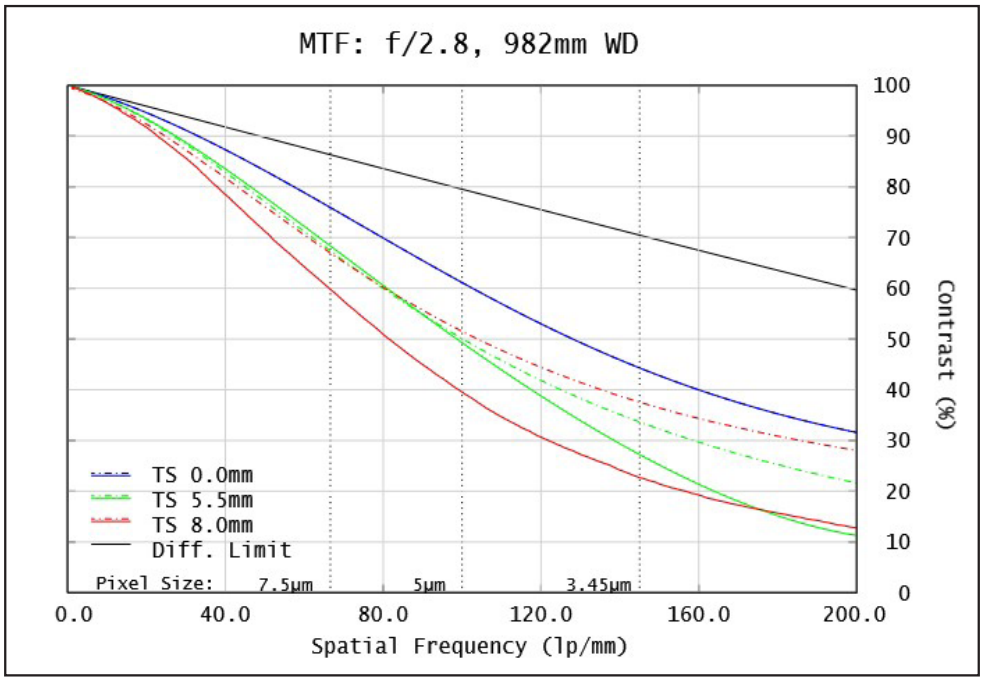

Figure 5: Image space polychromatic diffraction FFT Modulation Transfer Function (MTF) for λ = 486nm to 656nm. Included are the Tangential and Sagittal values for field points on center, at 70% of full field and the maximum sensor format. Solid black line indicates diffraction limit determined by f/#-defined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

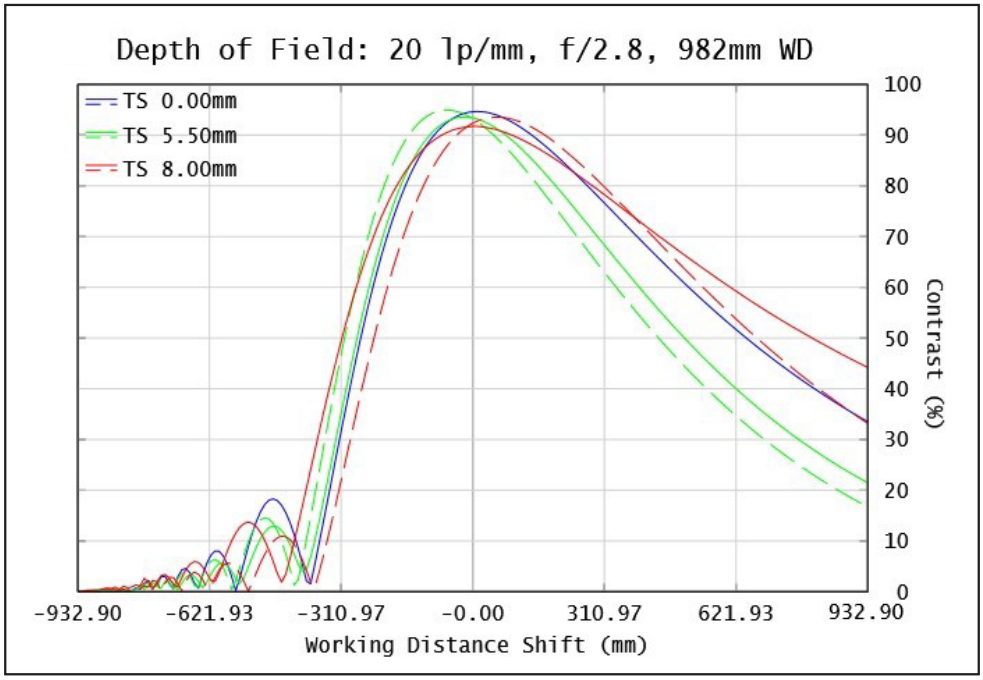

Figure 6: Polychromatic diffraction through-focus MTF at 20 linepairs/mm (image space). Contrast is plotted to two times the focus distance. Note object spatial frequency changes with working distance.

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