

Line Scan Lens

XENON-DIAMOND 2.7/111, beta' = -2.6x

This lens is optimized for the use with 12k pixel line scan sensors but can also be used for 16k. It is broadband coated for the spectral range of 400 – 1000 nm. The V-mount makes it easy to install and rotate the lens into the desired azimuth position for a wide range of line scan applications.

- Extremely high resolution of 2 μm in object space
- Highest light throughput with maximum opening at F# 2.7
- High and homogeneous MTF @72 lp/mm over entire 12K field
- Distortion smaller than 0.1%



XENON-Diamond

Key Features

- for line scan cameras
 - 12K (62.5 mm length / pixel sizes appr. 5 μm)
 - 16K (82 mm length / pixel sizes appr. 5 μm)
- Very high optical image quality in the large sensor range
- Vibration-insensitive for stable optical performance
- Lockable distance and aperture settings
- Industry-compatible V-mount interface
- Reliability and constant quality due to 100% quality control

Applications

- Web and surface inspections
- Quality control
- FPD inspection
- PCB inspection
- OLED inspection
- Line scan applications

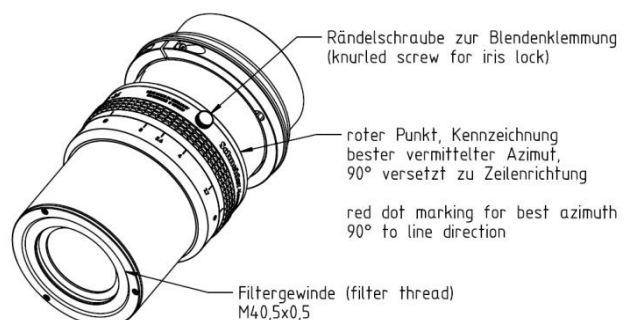
Technical Specifications

XENON-DIAMOND 2.7/111

F# range	2.7 – 8
Focal length	111.2 mm
Image circle	62.5 / 82 mm
Beta'	-2.6 (-2.45 ... -2.75)
Object to image distance	547 (533 ... 562) mm
Transmission	400 - 1000 nm
Interface	Schneider V-mount 70
Weight	appr. 950 gr.
Filter thread	M40.5 x 0.5
Code no. of lens	1078039

Accessories

		Code no.
Adapter V70 / M72 x 0.75	10 mm	# 1072419
Extension tube M72	5 mm	# 1072420
Extension tube M72	10 mm	# 1072421
Extension tube M72	25 mm	# 26406
Extension tube M72	50 mm	# 1054733
Extension tube M72	100 mm	# 1079483
Extension tube M72	200 mm	# 1079484
For 82 mm sensor length (16K):		
Adapter M72 x 0.75 / M95 x 1	4 mm	# 1077013
Extension tube M95	10 mm	# 1077290
Extension tube M95	25 mm	# 1062892
Extension tube M95	50 mm	# 1062893
Extension tube M95	100 mm	# 1062894
Extension tube M 95	200 mm	# 1077291



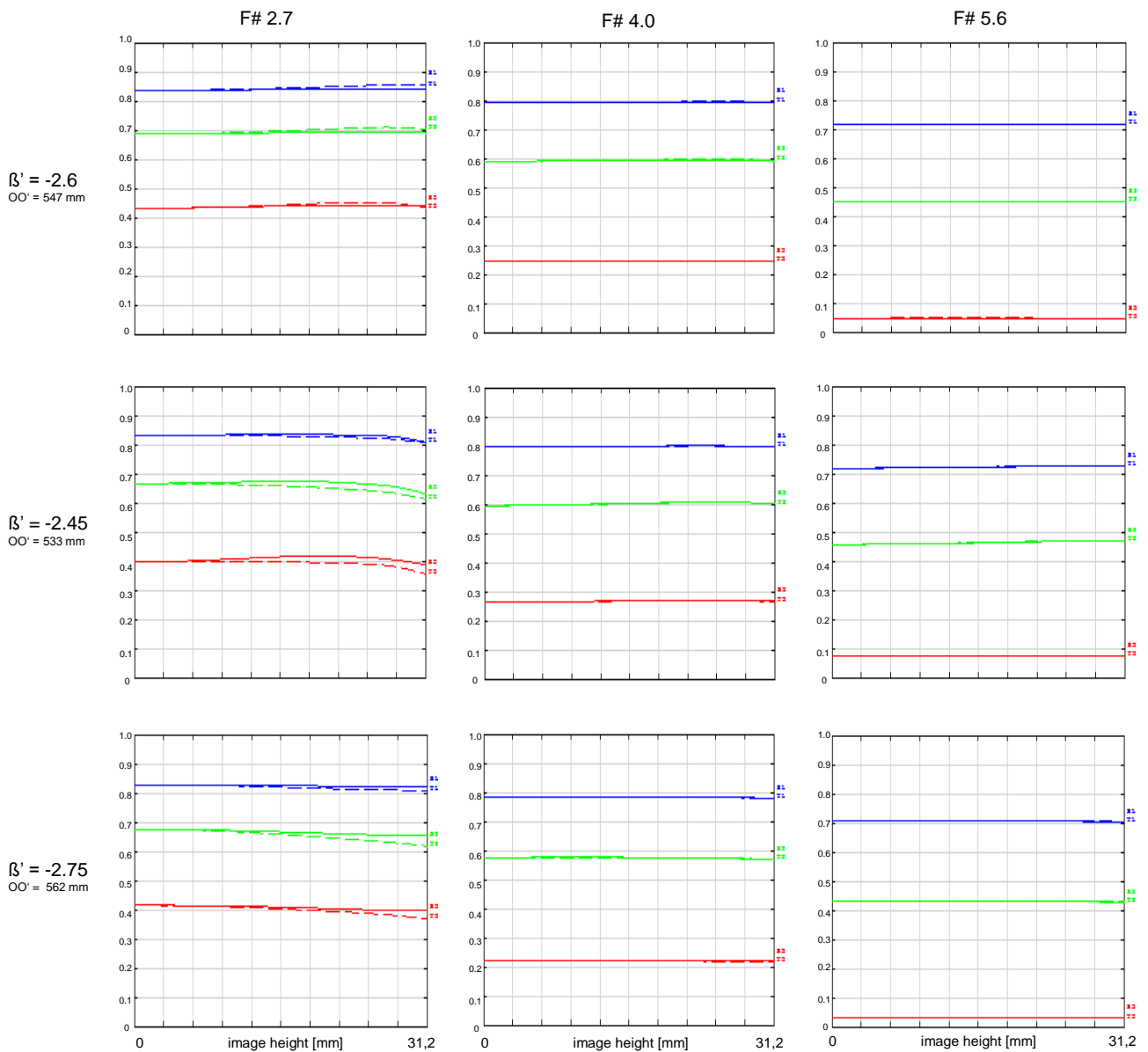
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$f' = 111.2 \text{ mm}$ $\beta'_p = 0.95$
 $s_F = -46.4 \text{ mm}$ $s_{EP} = 70.6 \text{ mm}$
 $s'_F = 58.6 \text{ mm}$ $s'_{AP} = -47.0 \text{ mm}$
 $HH' = -6.8 \text{ mm}$ $\square d = 110.6 \text{ mm}$

XENON Diamond 2.7/111 MTF with reference to image height for a 12K (5µm pixel) sensor

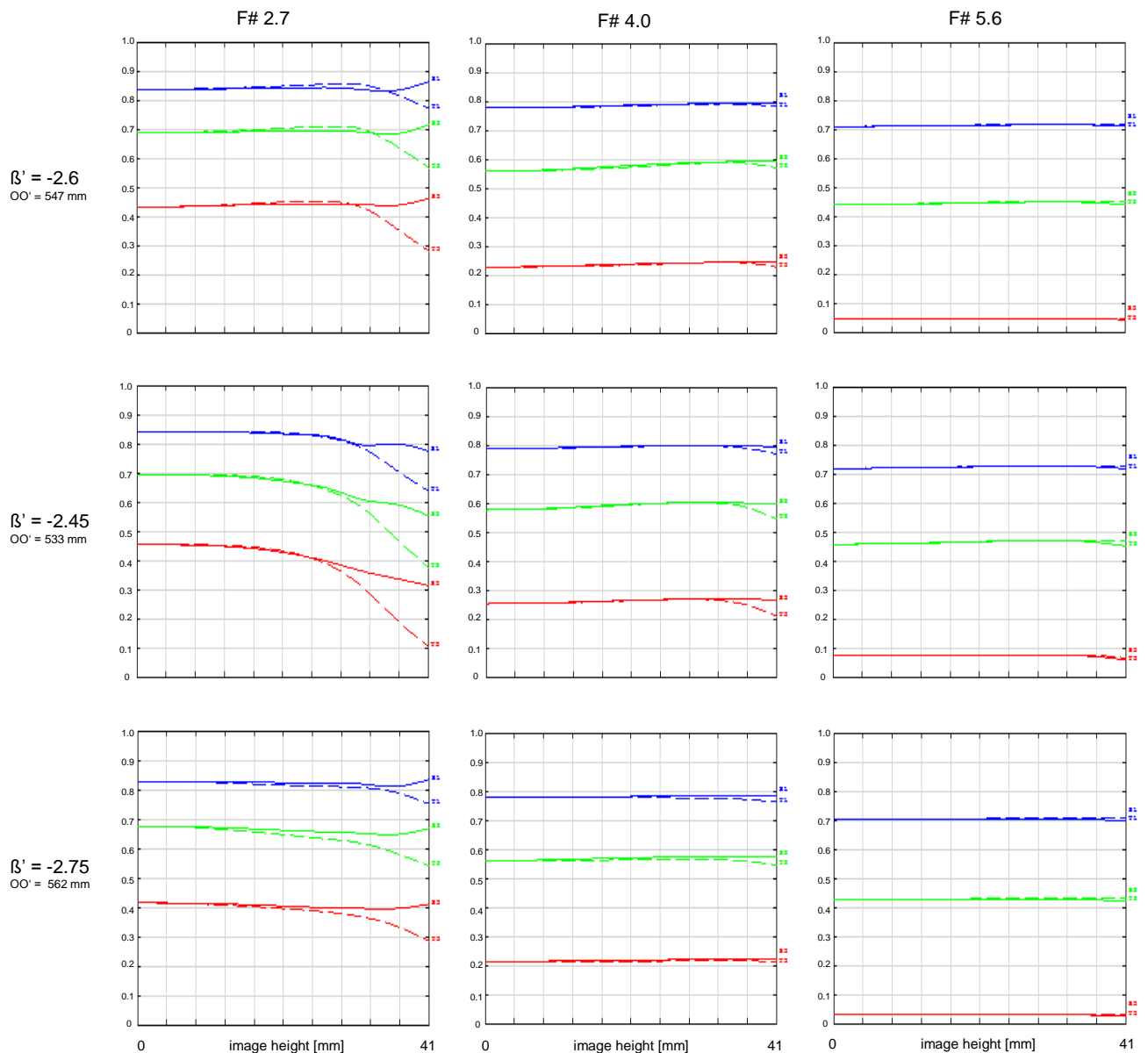
Wavelength λ	[nm]:	425	475	525	575	625	675	
Spectral weighting	[%]:	1.5	13.6	26.5	27.8	24.2	6.4	radial
Spatial frequency R	[1/mm]:	18	36	72				tangential
Image-Ø	[mm]:	62.5						



Xenon-Diamond 2.7/111

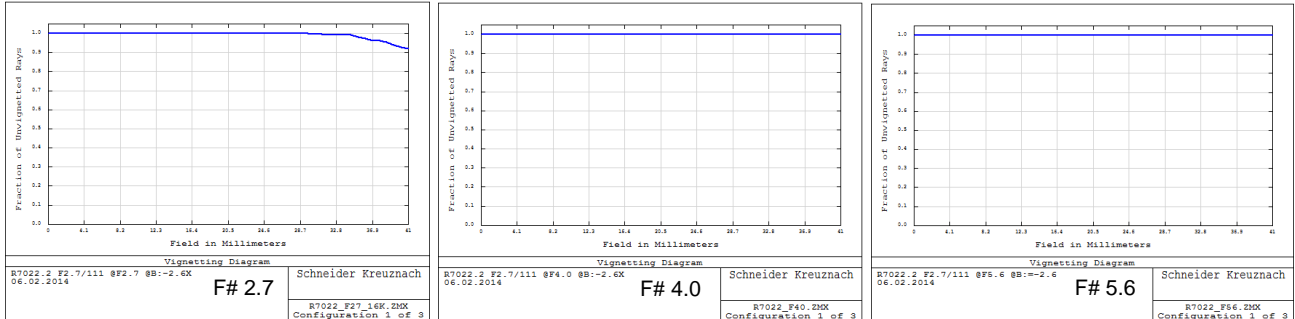
XENON Diamond 2.7/111
MTF with reference to image height for a 16K (5µm pixel) sensor

Wavelength λ	[nm]:	425	475	525	575	625	675	radial	———
Spectral weighting	[%]:	1.5	13.6	26.5	27.8	24.2	6.4	tangential	- - - - -
Spatial frequency R	[1/mm]:	18	36	72					
Image- \emptyset	[mm]:	82							

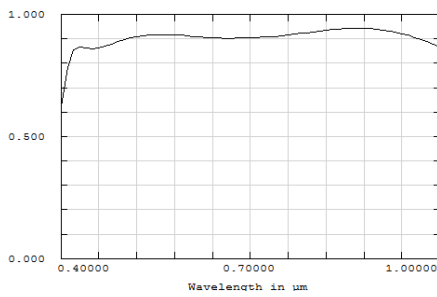


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Relative Illumination for sensor length up to 82 mm

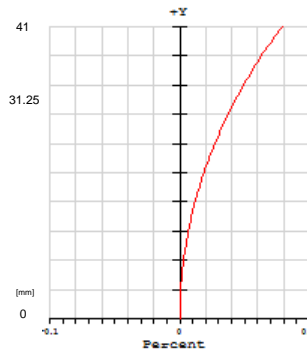


Transmission



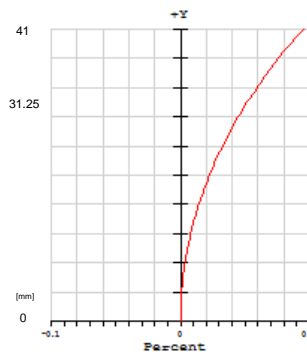
Distortion for sensor length 82 mm

$\beta' = -2.6$
OO' = 547 mm

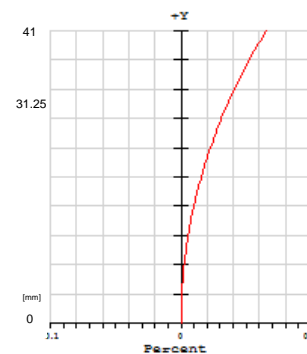


Distortion is shown for different magnifications. Positive values indicate pincushion distortion and negative values barrel distortion.

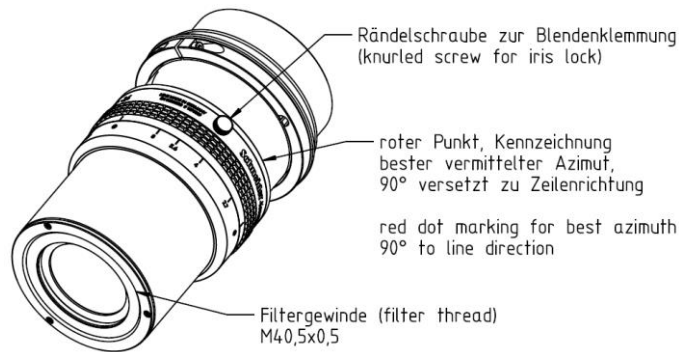
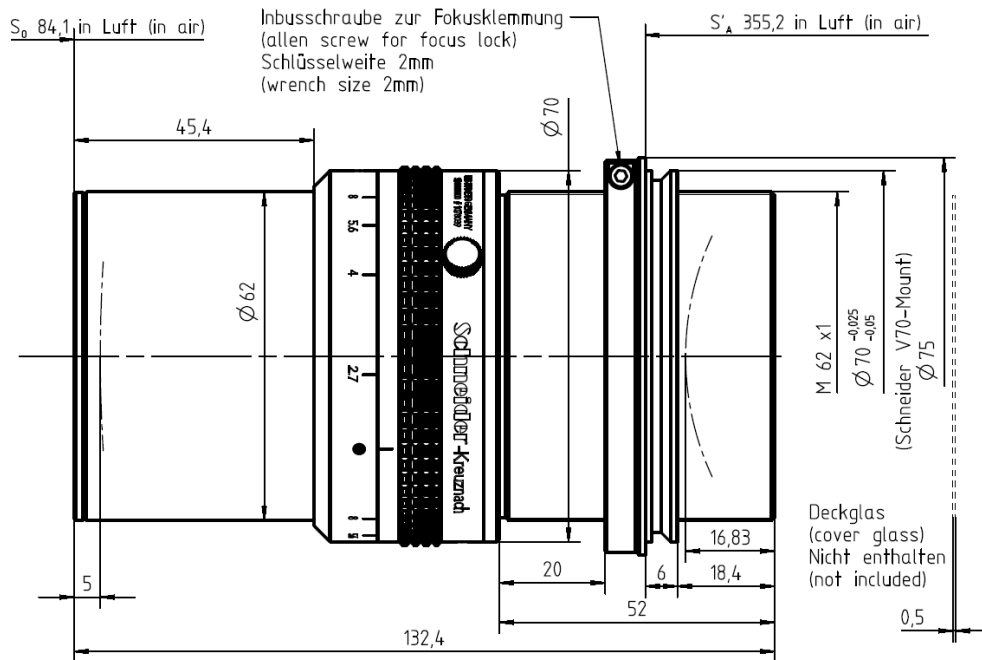
$\beta' = -2.45$
OO' = 533 mm



$\beta' = -2.75$
OO' = 562 mm



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