Line Scan Lens

XENON-SAPPHIRE 3.2/97, beta' = -1.43 (-0.7 in retro)

This lens is a mechanically adapted version of the XN Sapphire -0.7x lens in order to use it in retro orientation. It is broadband coated and can be used in the range of 400 – 1000 nm.
The V-mount makes it easy to install and rotate into the desired azimuth position for a wide range of high resolution applications.

The XENON Sapphire 3.2/97, beta' = -1.43x can be used for 12K as well as for 16K line sensors.

- F#3.2 is the maximum opening of the stop and provides maximum brightness. It is free of artifical vignetting. The MTF for 100 lp/mm is very high up to the edge of a 58 mm field. Due to the high aperture the lens is more sensitive with re-spect to change of magnification.
- F#4.0 shows maximum MTF and practically diffraction limited performance over the whole field. Hence the depth of field is bigger.

XENON-SAPPHIRE lens
beta' = -1.43

Key Features

- for 16k line scan cameras (57.3mm length / pixel sizes 3.5µm and 82mm length / pixel size appr. 5µm)
- for 12k line scan cameras (62.5mm length / pixel sizes appr. 5µm)
- High resolution optics 400 - 1000 nm
- Robust mechanics for industrial environment
- Vibration insensitive
- Focus and iris setting lockable

Applications

- 12k TDI inspection
- High-resolution 16k line scan applications
- Machine Vision and other imaging applications with high throughput
- Flat panel inspection
- Digitalization
- Detection of micro defects

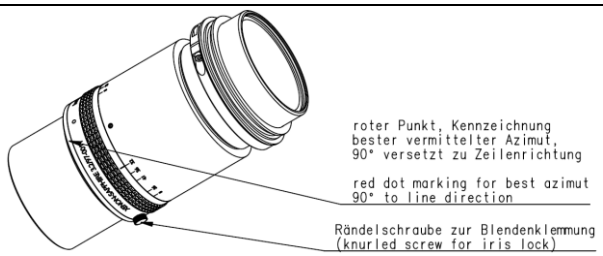
Technical Specifications	XENON-SAPPHIRE 3,2/97-0011
F# range	3.2 – 11,3
Focal length	97 mm
Image circle	62.5 mm also suitable for 82 mm 16K
Beta'	-1.43 (-1.35 … -1.54)
Object to image distance	388 (384 … 394mm)
Transmission	400 -1000 nm
Interface	Schneider V-mount 70
Weight	840 gr.
Code no.	1076096

Accessories

		Code no.
Adapter V70 / M72 x 0.75	10 mm	# 1072419
Extension tube	5 mm	# 1072420
Extension tube	10 mm	# 1072421
Extension tube	25 mm	# 26406
Extension tube	50 mm	# 1054733
Extension tube	100 mm	# 1079483
Extension tube	200 mm	# 1079484

For use with 82 mm line sensor further accessories with larger diameter are available on request.

XENON-SAPPHIRE 3.2/97 (in retro)



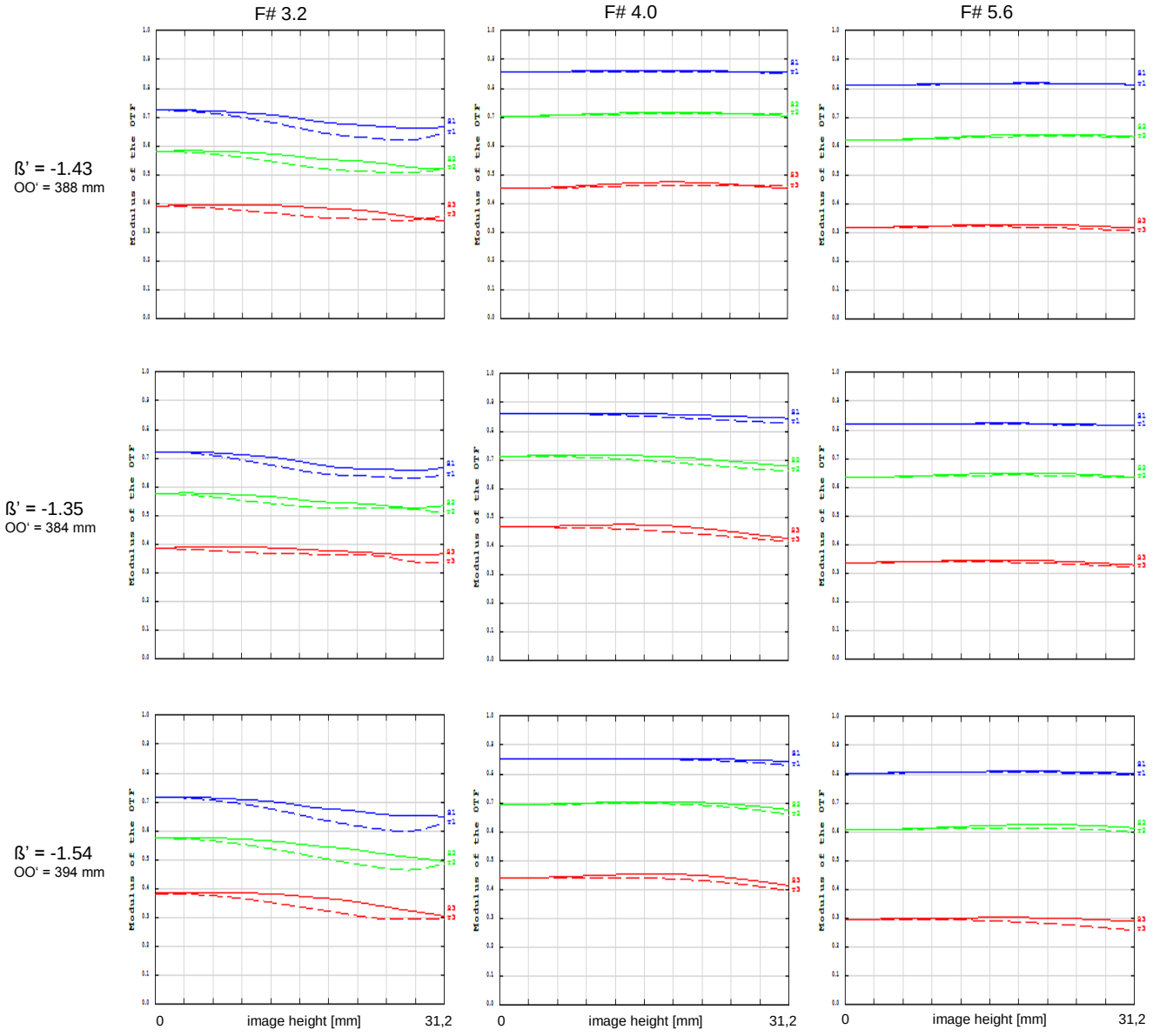
XENON SAPPHIRE 3.2/97

f'=	97,0 mm	$ß'_P$=	1,03
s_F=	-52,8 mm	s_{EP}=	46,8 mm
$s'_{F'}$=	49,6 mm	s'_{AP}=	-44,9 mm
HH'=	-12,25 mm	□d=	79,3mm

XENON Sapphire 3.2/97 (in retro)
MTF with reference to image height
for 12K line sensor with 5 µm pixel or 16K with 3.5 µm pixel

Wavelength λ	[nm]:	425	475	525	575	625	675
Spectral weighting	[%]:	1.5	13.6	26.5	27.8	24.2	6.4
Spatial frequency R	[1/mm]:	18	36	72 (= 12K sensor)			
Image-Ø	[mm]:	62.5					

radial ——————
tangential _ _ _ _ _



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XENON-SAPPHIRE 3.2/97 (in retro)

XENON Sapphire 3.2/97 (in retro)
MTF with reference to image height
for 82 mm 16K line sensor with 5 µm pixel size

Wavelength λ [nm]:	425	475	525	575	625	675
Spectral weighting [%]:	1.5	13.6	26.5	27.8	24.2	6.4
Spatial frequency R [1/mm]:	18	36	72 (= 16K sensor)			
Image-Ø [mm]:	82					

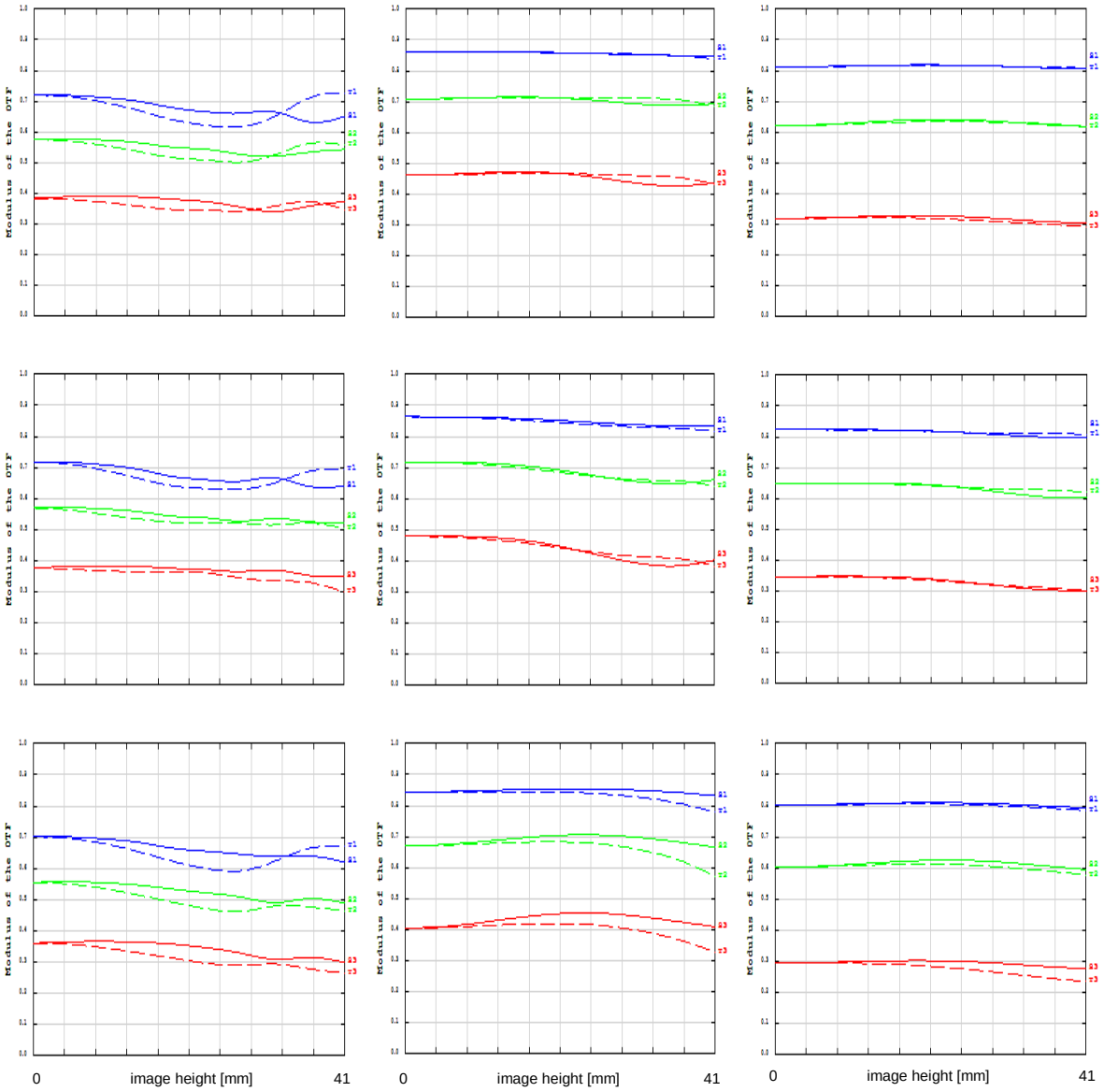
radial ————
tangential – – – – –

F# 3.2 F# 4.0 F# 5.6

ß' = -1.43
OO' = 388 mm

ß' = -1.35
OO' = 384 mm

ß' = -1.54
OO' = 394 mm

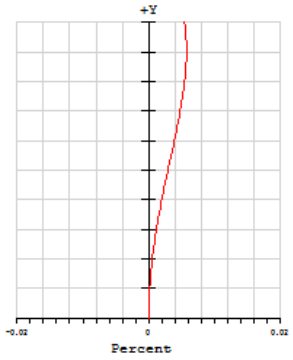


XENON-SAPPHIRE 3.2/97 (in retro)

Distortion
for 12K line sensor

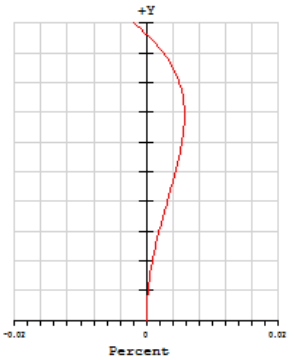
Distortion is shown for different magnifications. Positive values indicate pincushion distortion and negative values barrel distortion.

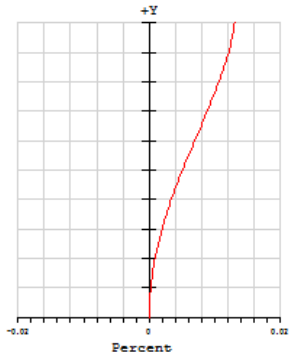
Distortion
for 82 mm 16K line sensor



ß' = -1.43

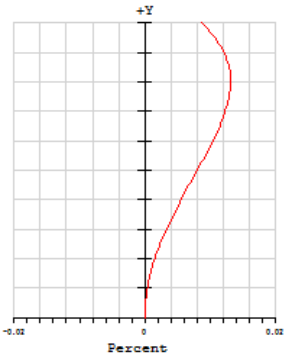
OO'= 388

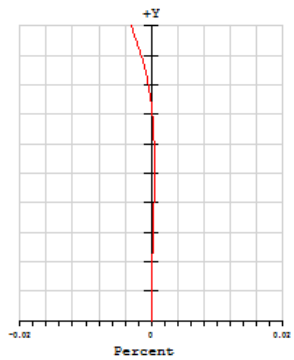




ß' = -1.35

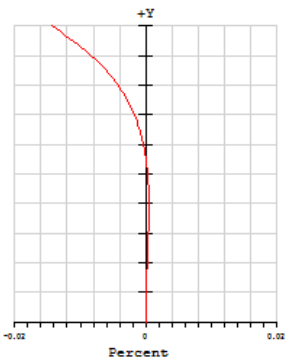
OO'= 384





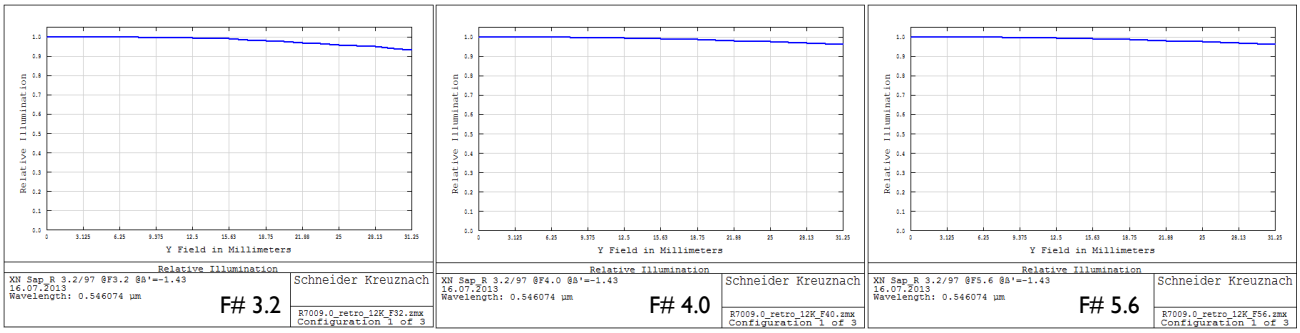
ß' = -1.54

OO'= 394

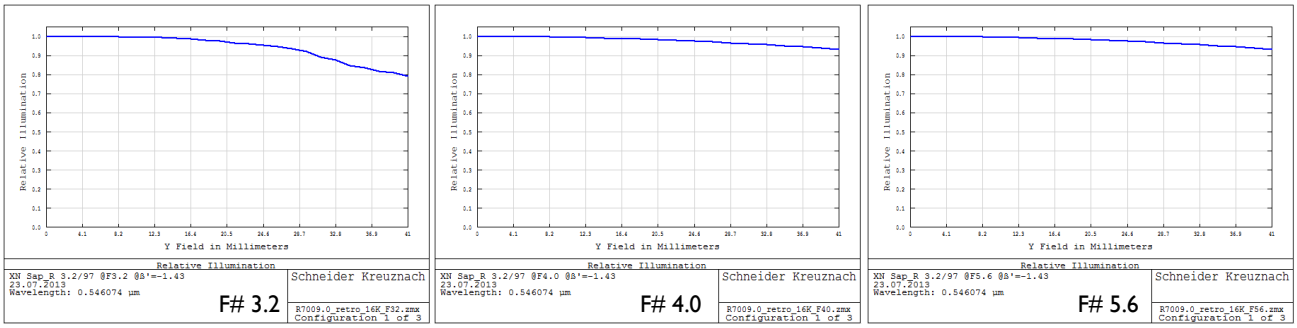


XENON-SAPPHIRE 3.2/97 (in retro)

Relative Illumination
for 12K line sensor

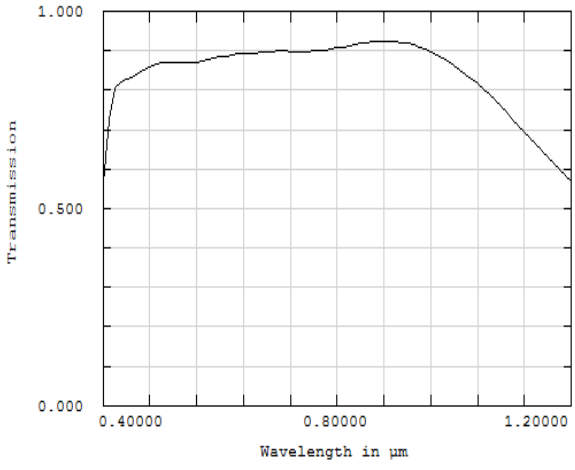


Relative Illumination
for 82 mm 16K line sensor

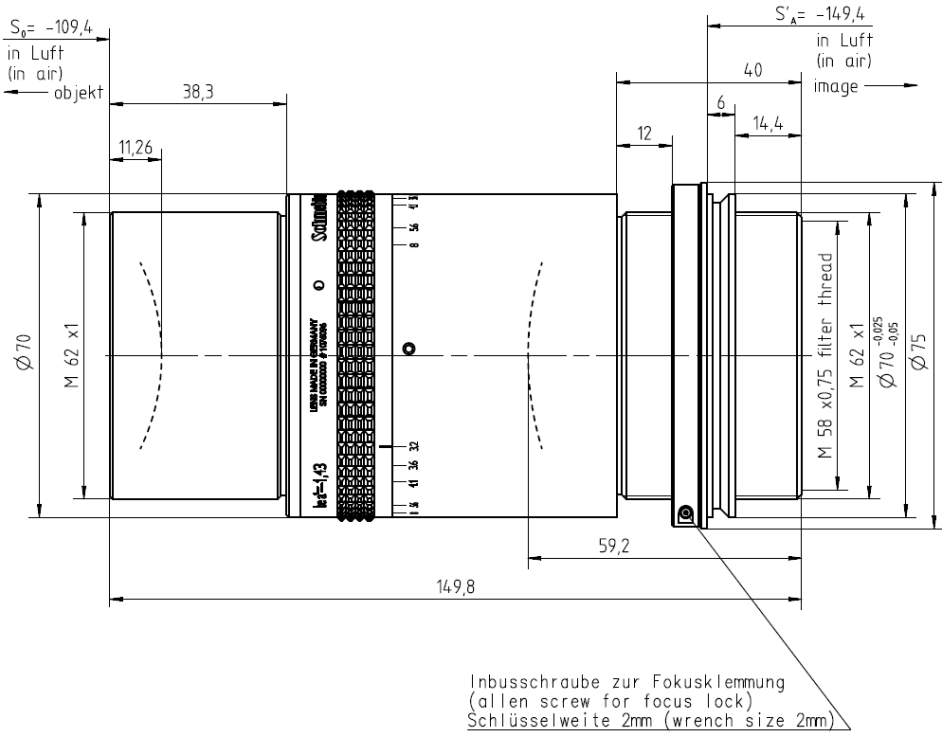


Transmission

Relative spectral transmission is
shown with reference to wavelength.



XENON-SAPPHIRE 3.2/97 (in retro)



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