Schneider KREUZNACH

Line Scan Lens

XENON-SAPPHIRE 3.7/96, beta' = -0.29

This high-resolution, high-speed lens is optimized for the use with 16k pixel line scan sensors. 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 3.7/96 provides three significant stop positions that are especially marked on the stop ring:

- F#3.7 is the maximum opening of the stop and provides maximum brightness. The mechanical vignetting at this F/number is only approx. 15% at the edge of the field. 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 respect to change of magnification.
- F#4.4 shows maximum MTF and practically diffraction limited performance over the whole field. The depth of field is bigger but the lens is still sensitive to magnification changes.
- F#5.4 produces more diffraction which reduces the MTF slightly but is now extremely homogenous over the entire field. The lens shows this performance for the complete magnification range from -0.315 < ß' < -0.27 and performs well for a magnification range of -0.33 < ß' < -0.255 at a 16k performance of 100 lp/mm.

XENON-SAPPHIRE lens

Key Features

- for 16k line scan cameras (57.3mm length / pixel sizes 3.5µm)
- 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

- High-resolution 16k line scan applications
- 12k TDI inspection
- Machine Vision and other imaging applications with high throughput
- Flat panel inspection
- Quality control, etc.

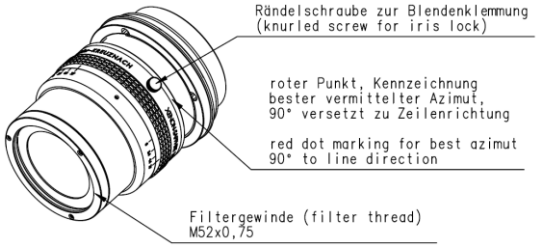
Technical Specifications	XENON-SAPPHIRE 3.7/96
F/stop range	3.7 - 8
Focal length	95.5 mm
Image circle	62.5 mm
Beta'	-0.29 (-0.255 … -0.33)
Object to image distance	539 (581 … 503)mm
Transmission	400 -1000 nm
Interface	Schneider V-mount 70
Weight	ca. 700 gr.
Code no.	1071818

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

Schneider KREUZNACH

XENON-SAPPHIRE 3.7/96



XENON SAPPHIRE 3.7/96

f'= 95,5 mm	$ß'_P$= 1,05
s_F= -48,02 mm	s_{EP}= 43,32 mm
$s'_{F'}$= 53,65 mm	s'_{AP}= -46,24 mm
HH'= -9,28 mm	□d= 80,09 mm

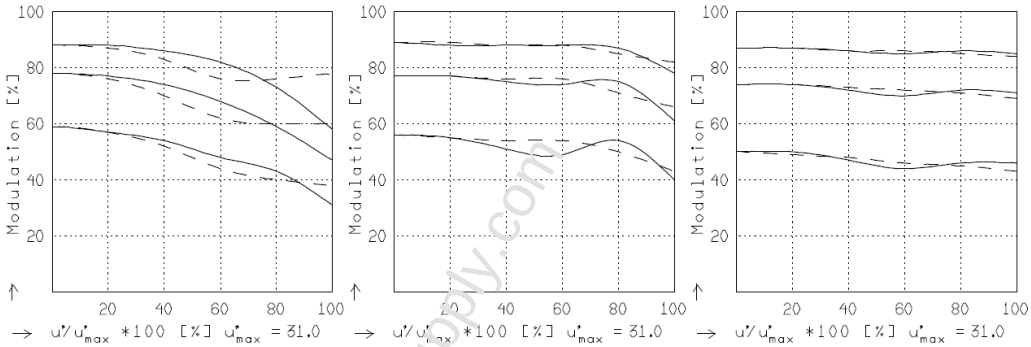
XENON SAPPHIRE 3.7/96

MODULATION with reference to the relative image height

Wavelength	λ	[nm] :	525	675	625	575	475	425
Spectral weighting		[%] :	26.5	6.4	24.2	27.8	13.6	1.5
Spatial frequency R		[1/mm] :	25	50	100			
Image-Ø f /3.7		[mm] :	62.0					
Image-Ø f /5.4		[mm] :	62.0					

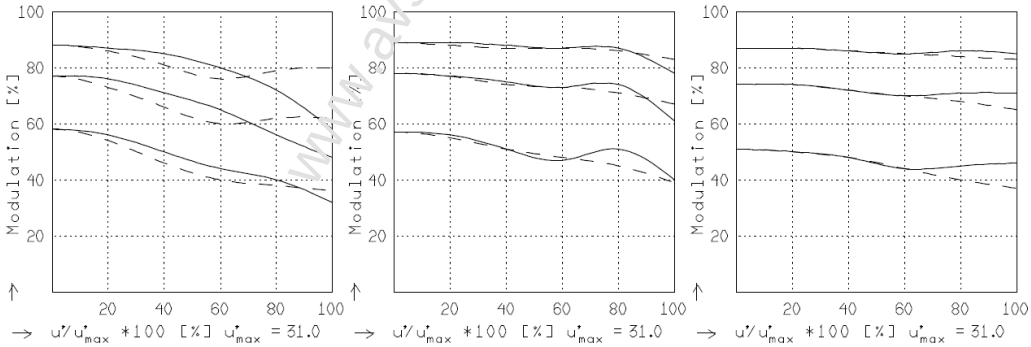
radial ——
tangential — —

ß' = -0.29



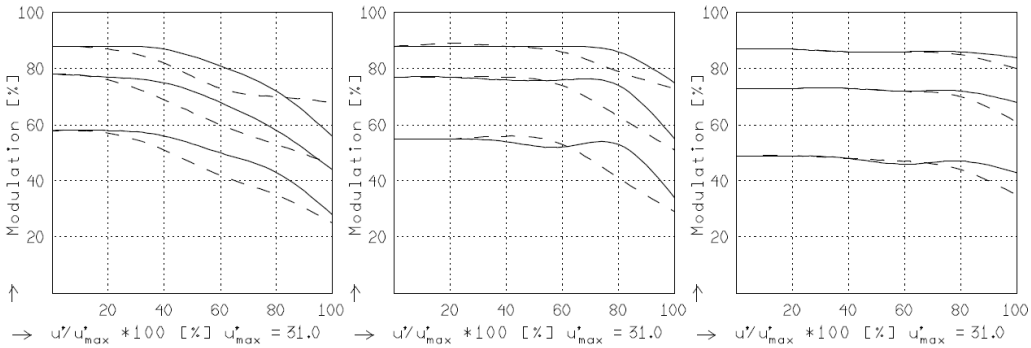
f'= 94.7 f/ 3.7 1/ß'= -3.45 OO'= 539 f'= 94.7 f/ 4.4 1/ß'= -3.45 OO'= 539 f'= 94.7 f/ 5.4 1/ß'= -3.45 OO'= 539

ß' = -0.27



f'= 94.7 f/ 3.7 1/ß'= -3.70 OO'= 561 f'= 94.7 f/ 4.4 1/ß'= -3.70 OO'= 561 f'= 94.7 f/ 5.4 1/ß'= -3.70 OO'= 561

ß' = -0.315

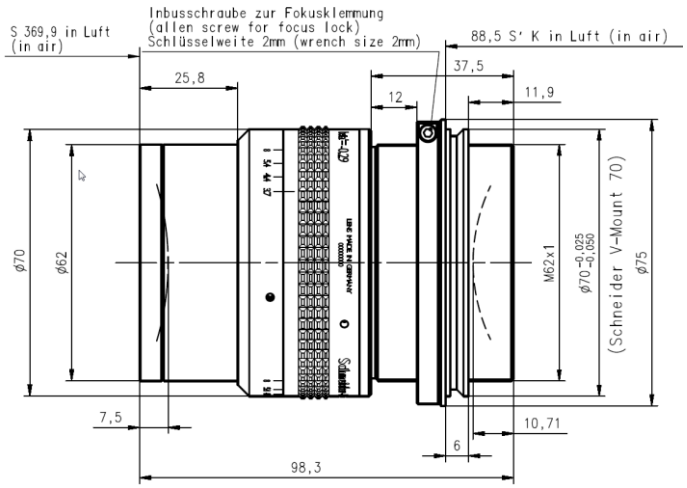


f'= 94.7 f/ 3.7 1/ß'= -3.17 OO'= 515 f'= 94.7 f/ 4.4 1/ß'= -3.17 OO'= 515 f'= 94.7 f/ 5.4 1/ß'= -3.17 OO'= 515

Focusing : MTF_{max} at f / 4.4 , R = 50 1/mm, u'/u'_{max} = 0

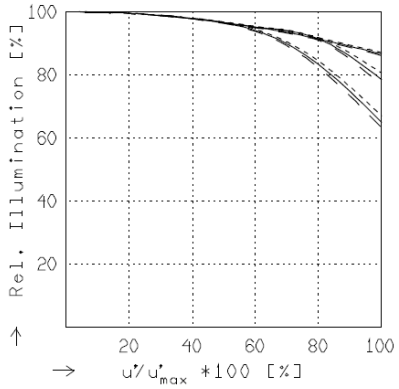
Schneider KREUZNACH

XENON-SAPPHIRE 3.7/96



XENON SAPPHIRE 3.7/96

f'= 95,5 mm	ß'$_P$= 1,05
s_F= -48,02 mm	s_{EP}= 43,32 mm
s'$_{F'}$= 53,65 mm	s'$_{AP}$= -46,24 mm
HH'= -9,28 mm	□d= 80,09 mm

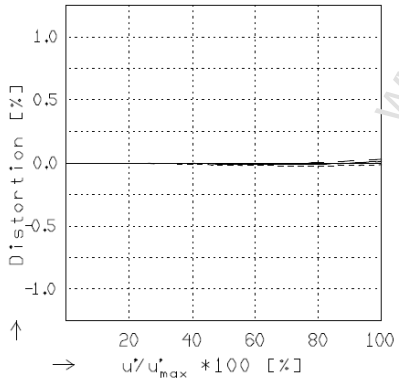


RELATIVE ILLUMINATION

The relativ illumination is shown for the given focal distances or magnifications.

f / 3.7 f / 4.4 f / 5.4

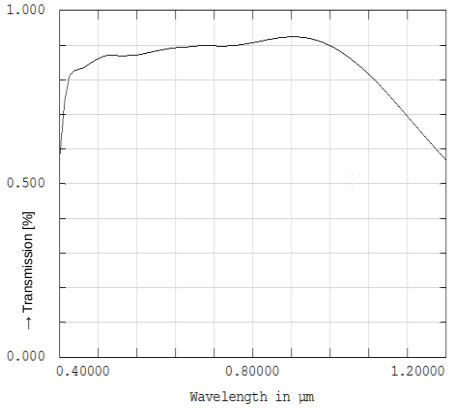
—— ß' = -0.2900 u'_{max} = 31.0 OO'= 539
— — ß' = -0.2700 u'_{max} = 31.0 OO'= 561
----- ß' = -0.3150 u'_{max} = 31.0 OO'= 515



DISTORTION

Distortion is shown for the given focal distances or magnifications. Positive values indicate pincushion distortion and negative values barrel distortion.

—— ß' = -0.2900 u'_{max} = 31.0 OO'= 539
— — ß' = -0.2700 u'_{max} = 31.0 OO'= 561
----- ß' = -0.3150 u'_{max} = 31.0 OO'= 515



TRANSMITTANCE

Relative spectral transmittance is shown with reference to wavelength.