Schneider KREUZNACH

Line Scan Lens

XENON-SAPPHIRE 3.2/88, beta' = -1.75
for use with Beam Splitter Prism (BSP)

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 spectral 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 3.2/88 provides two significant stop positions that are especially marked on the stop ring:

- 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 respect 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

Key Features

- for 16k line scan cameras (57.3mm length / pixel sizes 3.5µm and 82mm length / pixel size 5.1µm) as well as
- for 12k line scan cameras (62.5mm length / pixel sizes appr. 5µm)
- High resolution optics from 400 - 1000 nm
- Use with suitable BSP (25 mm thick BK7) for illumination
- Robust mechanics for industrial environment
- Vibration insensitive
- Focus and iris setting lockable

Applications

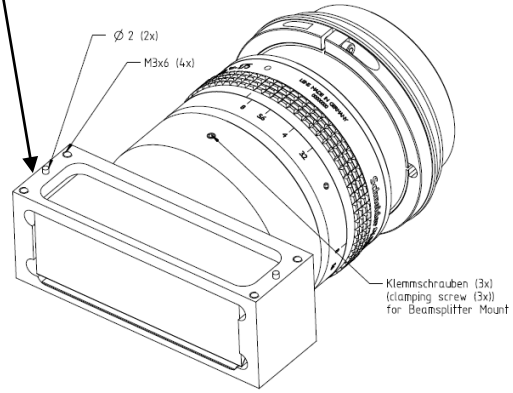
- High-resolution 16k line scan applications with coaxial illumination for inspecting reflective objects
- Bright field applications
- 12k TDI inspection
- Machine Vision and other imaging applications with high throughput
- Flat panel inspection
- Digitalization
- Detection of micro defects

Technical Specifications	XENON-SAPPHIRE 3,2/88
F# range	3.2 - 8
Focal length	88.2 mm
Image circle	62.5 mm
Beta'	-1.75 (-1.65 … -1.85)
Object to image distance	380 (375 … 386) mm
Transmission	400 -1000 nm
Interface	Schneider V-mount 70
Weight without BSP	765 gr.
Code no.	
lens only	1072762
lens including mounted BSP	1073347

Accessories

	Code no.
Beam Splitter Prism in mount	# 1073831
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

A BSP must be used with this lens as its thickness of 25 mm (BK7) is basis of the optical design.



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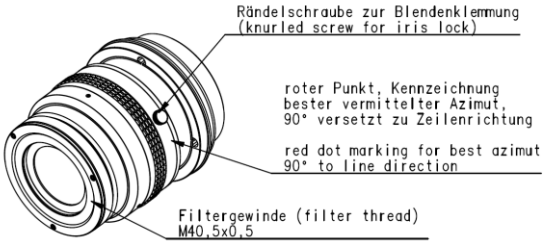
XENON-SAPPHIRE 3.2/88 for use with BSP



XENON SAPPHIRE 3.2/88

f'=	88,2 mm	$ß'_P$=	1,10
s_F=	-46,0 mm	s_{EP}=	34,6 mm
$s'_{F'}$=	56,9 mm	s'_{AP}=	-39,5 mm
HH'=	-0,9 mm	∑d=	72,8mm

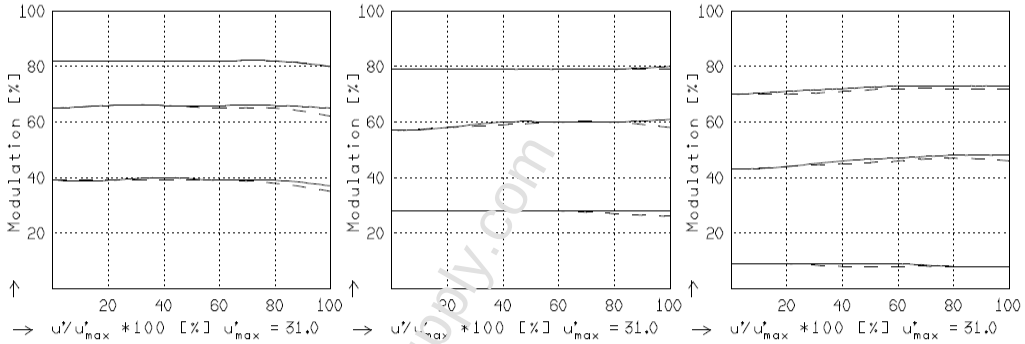
XENON SAPPHIRE 3.2/88 for use with BSP

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 / 3.2		[mm] :	62.0					
Image-Ø f / 5.6		[mm] :	62.0					

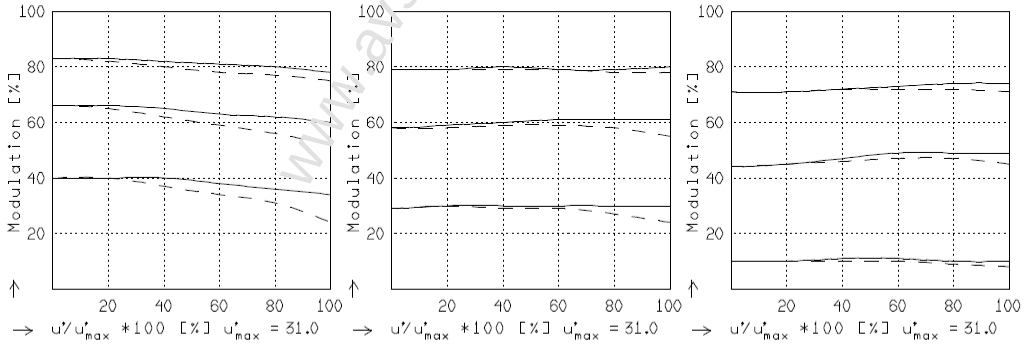
radial ——
tangential — —

ß' = -1.75



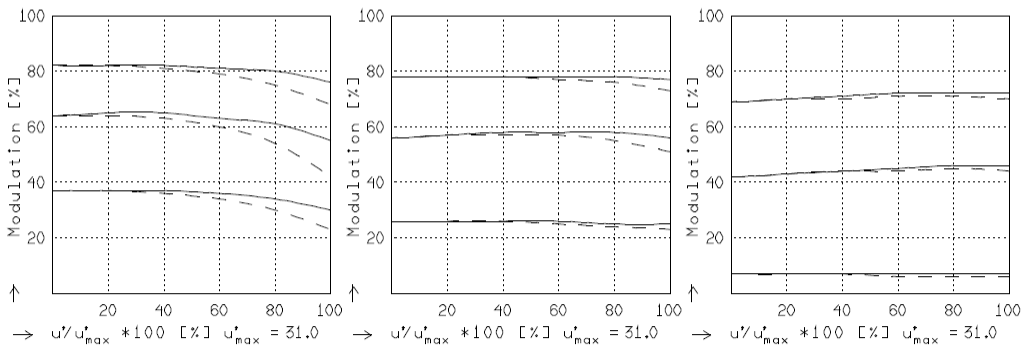
f' = 87.5 f/ 3.2 1/ß' = -0.57 OO'= 380 | f' = 87.5 f/ 4.0 1/ß' = -0.57 OO'= 380 | f' = 87.5 f/ 5.6 1/ß' = -0.57 OO'= 380

ß' = -1.65



f' = 87.5 f/ 3.2 1/ß' = -0.61 OO'= 375 | f' = 87.5 f/ 4.0 1/ß' = -0.61 OO'= 375 | f' = 87.5 f/ 5.6 1/ß' = -0.61 OO'= 375

ß' = -1.85



f' = 87.5 f/ 3.2 1/ß' = -0.54 OO'= 386 | f' = 87.5 f/ 4.0 1/ß' = -0.54 OO'= 386 | f' = 87.5 f/ 5.6 1/ß' = -0.54 OO'= 386

Focusing : MTF_{max} at f / 4.8 , R = 50 1/mm, u'/u'_{max} = 0

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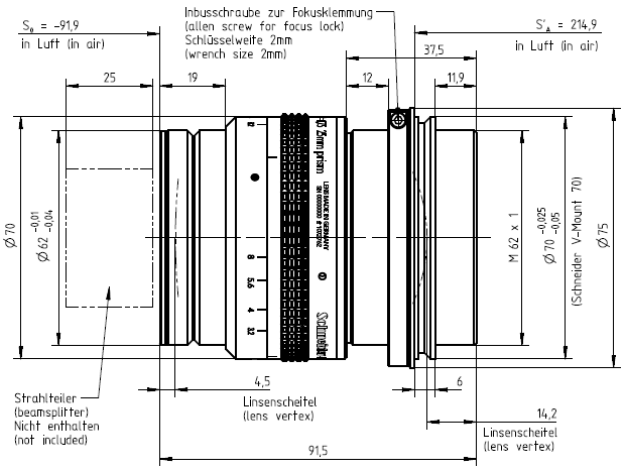
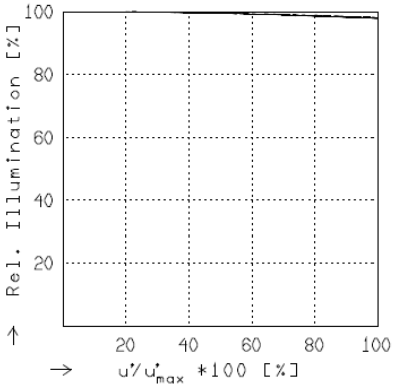
XENON-SAPPHIRE 3.2/88 for use with BSP



XENON SAPPHIRE 3.2/88

f'= 88,2 mm	ß'$_P$= 1,10
s_F= -46,0 mm	s_{EP}= 34,6 mm
s'$_{F'}$= 56,9 mm	s'$_{AP}$= -39,5 mm
HH'= -0,9 mm	∑d= 72,8mm

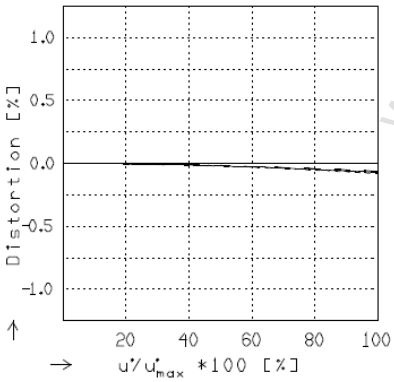


RELATIVE ILLUMINATION

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

f / 3.2 f / 4.0 f / 5.6

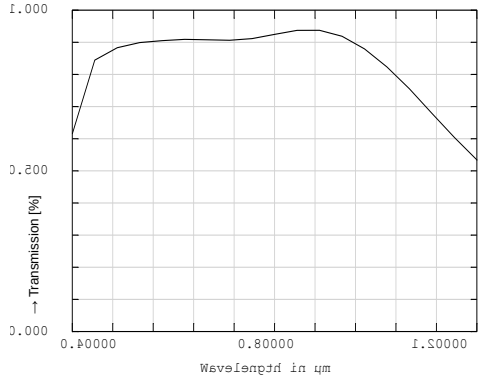
——— ß' = -1.7500 u'_{max} = 31.0 OO'= 380
— - ß' = -1.6500 u'_{max} = 31.0 OO'= 375
- - - ß' = -1.8500 u'_{max} = 31.0 OO'= 386



DISTORTION

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

——— ß' = -1.7500 u'_{max} = 31.0 OO'= 380
— — ß' = -1.6500 u'_{max} = 31.0 OO'= 375
----- ß' = -1.8500 u'_{max} = 31.0 OO'= 386



TRANSMITTANCE without Beam Splitter Prism

Relative spectral transmittance is shown with reference to wavelength.

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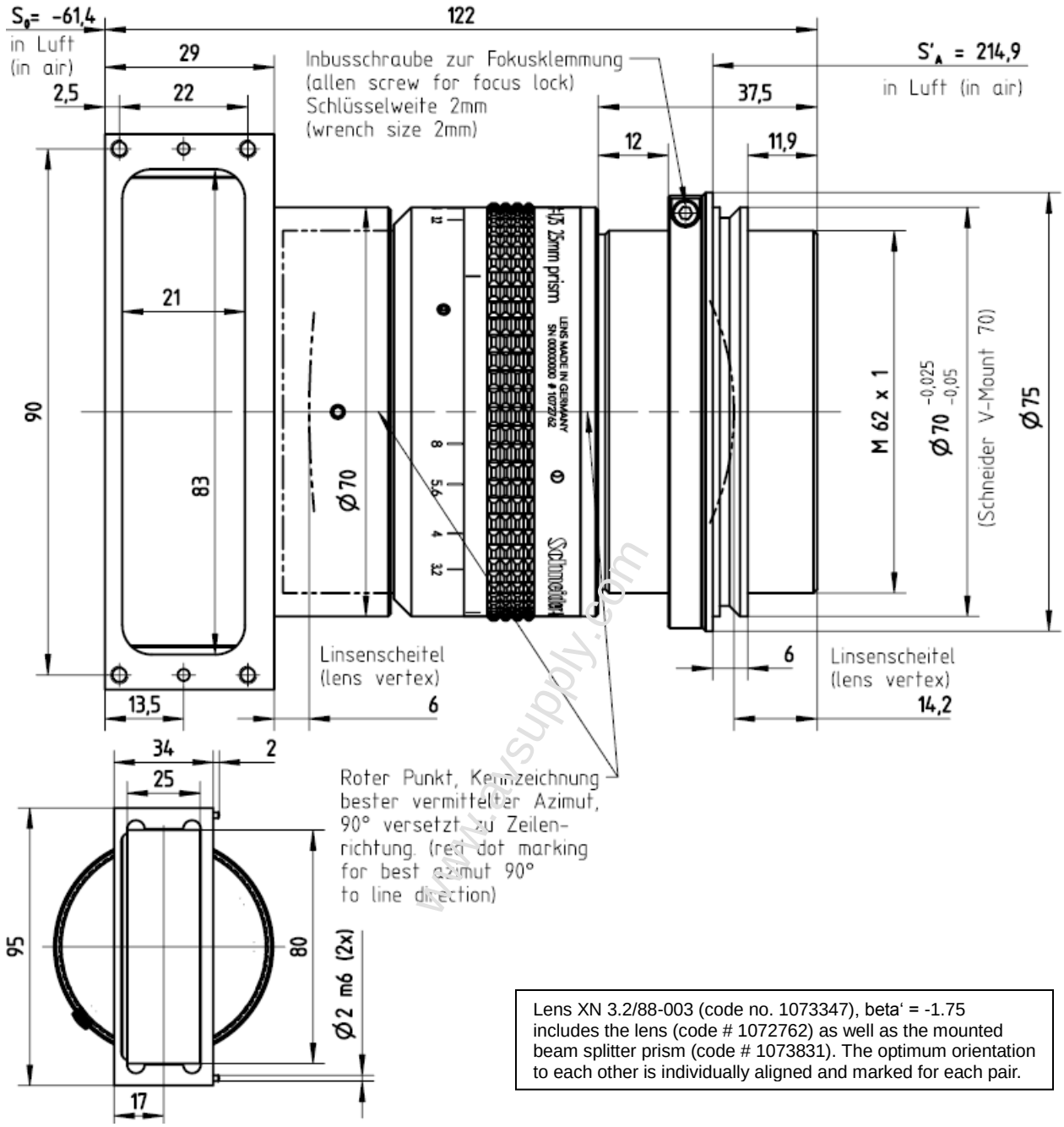

Lens XN 3.2/88-003 (code no. 1073347), beta' = -1.75 includes the lens (code # 1072762) as well as the mounted beam splitter prism (code # 1073831). The optimum orientation to each other is individually aligned and marked for each pair.