

Xenon-Emerald XN 4,0/80-0033

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Many camera manufacturers are using the F-Mount bayonet as the camera/lens interface of their high resolution area and line scan cameras. Schneider-Kreuznach has addressed this topic with the new series of industrial XENON EMERALD lenses. This low distortion lens with an image circle diameter of 60 mm is compact, robust, lockable in distance and aperture, designed for close up range or infinity and optimized for a uniform image quality over the whole sensor area. The 400-1000 nm broadband coating makes them suitable for applications in the visible and the near infrared spectrum. The option of alternative mounts like e.g. Canon bayonet or M42 thread makes them even more flexible for a wide range of applications in machine vision, quality control, web inspection and other image processing applications.



Xenon-Emerald 4,0/80-0033

Key Features

- Robust mechanics for rough industrial environment
- Compact design and low weight
- Focus and iris setting lockable
- High resolution optics 400 - 700 nm (VIS) / 700 - 1000 nm (NIR)
- Corrected for close up range
- Constant MTF over the entire image field

Applications

- Machine vision and other imaging applications
- Quality control
- Web inspection
- Surface inspection
- Line scan applications

Technical Specifications	Xenon-Emerald 4,0/80-0033
F# range	4,0 – 16
Focal length	80 mm
Image circle	60 mm
Transmission	400 - 1000 nm
Interface	F-Mount / V48
Weight	280 g
Filter thread	M43 x 0,75
Code no. F-Mount	1085723
Code no. V48	1086888

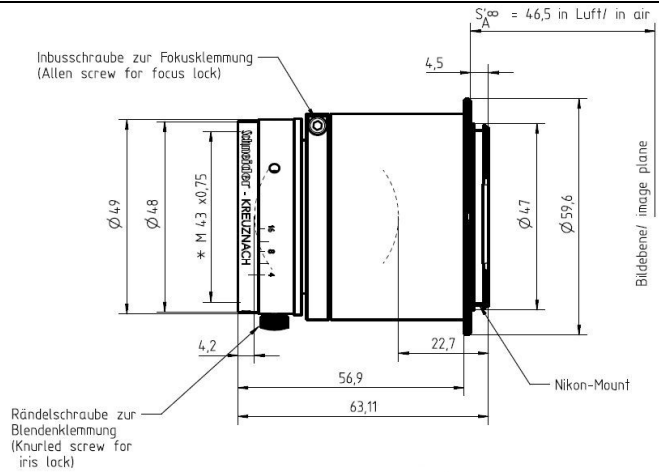
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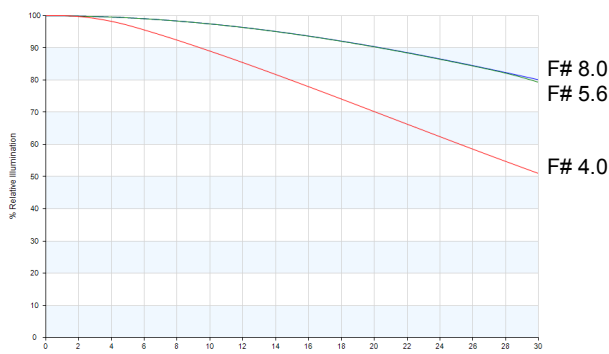
Xenon-Emerald 4,0/80 ($\lambda = \text{nm}$)

$f' = 80.3 \text{ mm}$ $\beta'_P = 1.03$

$\varnothing_{EP} = 20.12 \text{ mm}$ $s_{EP} = 19.8 \text{ mm}$

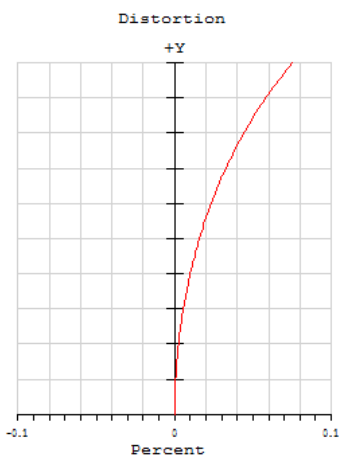
$s'_{F'} = 64.7 \text{ mm}$ $s'_{AP} = -18.4 \text{ mm}$

$HH' = -1.8 \text{ mm}$ $\Sigma d = 36.3 \text{ mm}$



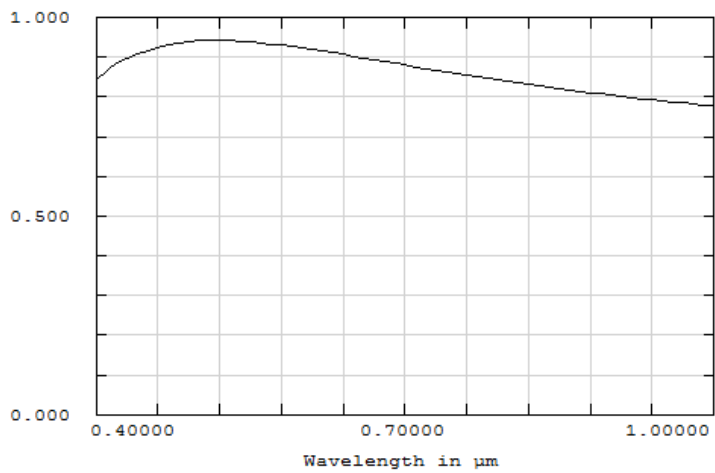
Relative Illumination

The relative illumination is shown for the given F-Numbers over the field of the sensor and referenced to the center of the sensor.



Distortion

Distortion is shown for the given magnification of $\beta' = 0$. Positive values indicate pincushion distortion and negative values barrel distortion.



Transmittance

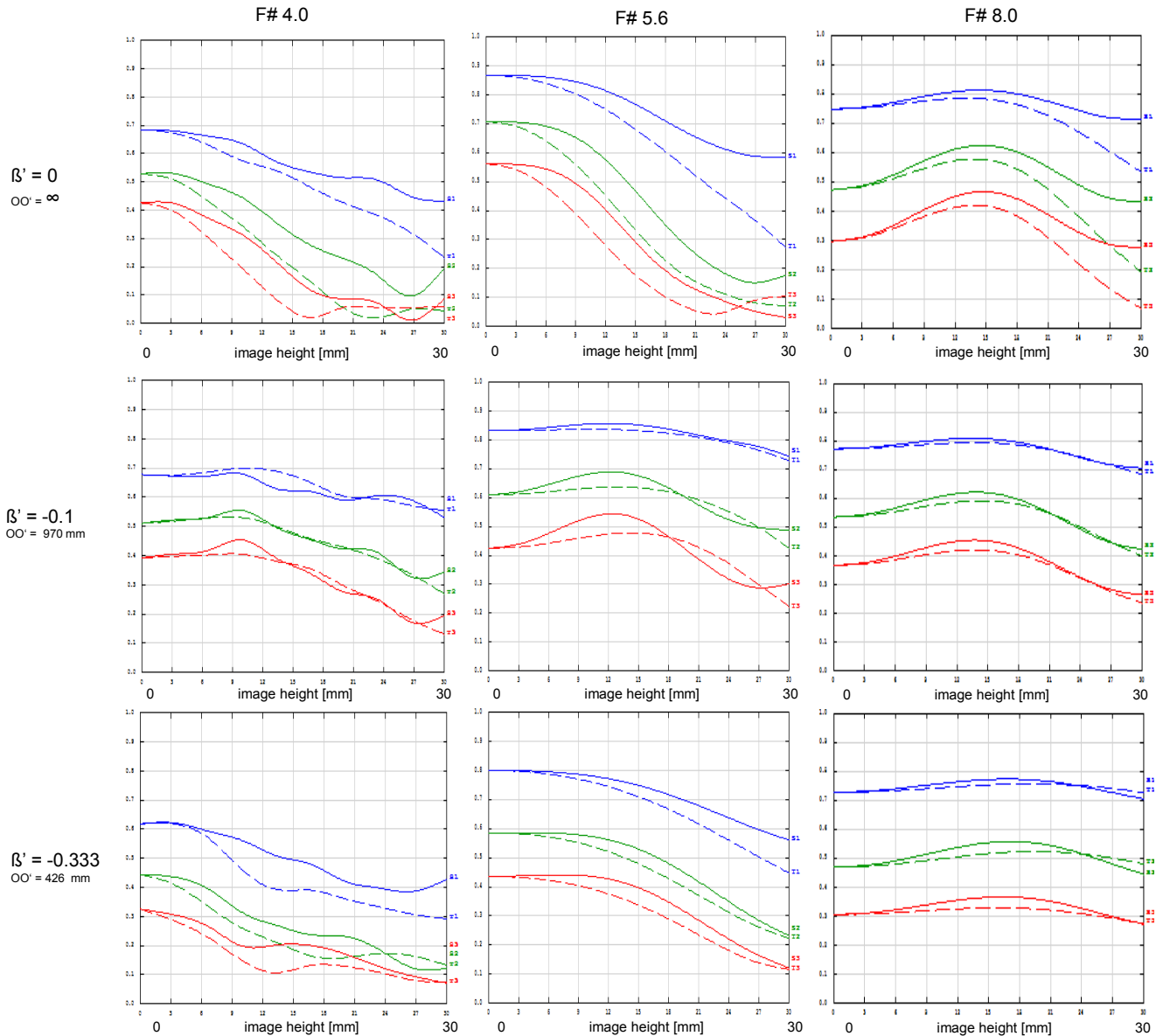
Relative spectral transmittance is shown with reference to wavelength.

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MTF with reference to image height for visible spectrum

Wavelength λ	[nm]:	436	486	546	588	644
Spectral weighting	[%]:	8.5	21.7	27.4	25.8	16.6
Spatial frequency R	[1/mm]:	25	50	75		
Image circle	[mm]:	60				

radial ———
 tangential - - - - -



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MTF with reference to image height for NIR spectrum

Wavelength λ [nm]:	810	830	850	870	890
Spectral weighting [%]:	13.2	23.7	26.3	23.7	13.2
Spatial frequency R [1/mm]:	25	50	75		
Image circle [mm]:	60				

radial ———
 tangential - - - -

