

Line scan lens

Makro-Symmar 5.6/120-0.75x

Wherever complex web and surface inspections are concerned, the line scan image capture method is used in most cases. Due to the principle used, this method requires a very careful choice of camera and an optimally adapted lens in order to achieve maximum system performance. It is essential to observe important application-specific and physical parameters: the size of the CCD or CMOS imaging sensor in the camera defines the minimum required image circle of the lens.



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Key Features

- Very high optical image quality in the large sensor range
- Vibration-insensitive for stable optical performance
- Reverse position of the lens possible to enlarge the magnification range
- Lockable distance and aperture settings
- Use in best azimuth position possible
- Industry-compatible V-mount interface
- 100% quality control guarantees reliability and constant quality
- Low maintenance requirements, therefore high system availability

Applications

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

Technical Specifications

| | |
|---------------|----------------|
| F-number | 5.6 |
| Focal length | 120.2 mm |
| Image circle | 86 mm |
| Magnification | -0.75 |
| Transmission | 400 - 1000 nm |
| Interface | V-Mount |
| Weight | 170 gr. |
| Option | Optical filter |

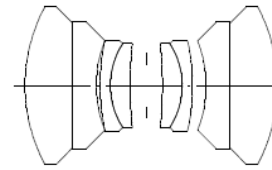
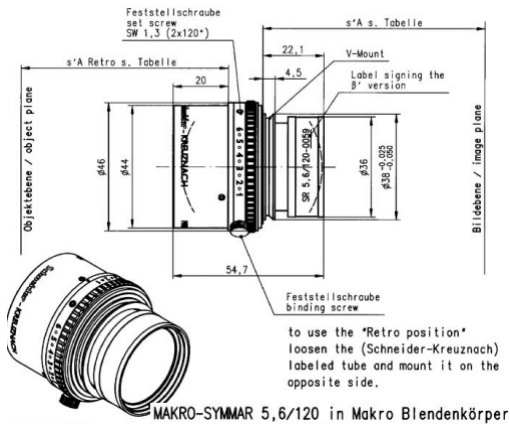
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Makro-Symmar 5.6/120-0.75



M-SR 5.6/120 BETA -0.625...-0.875

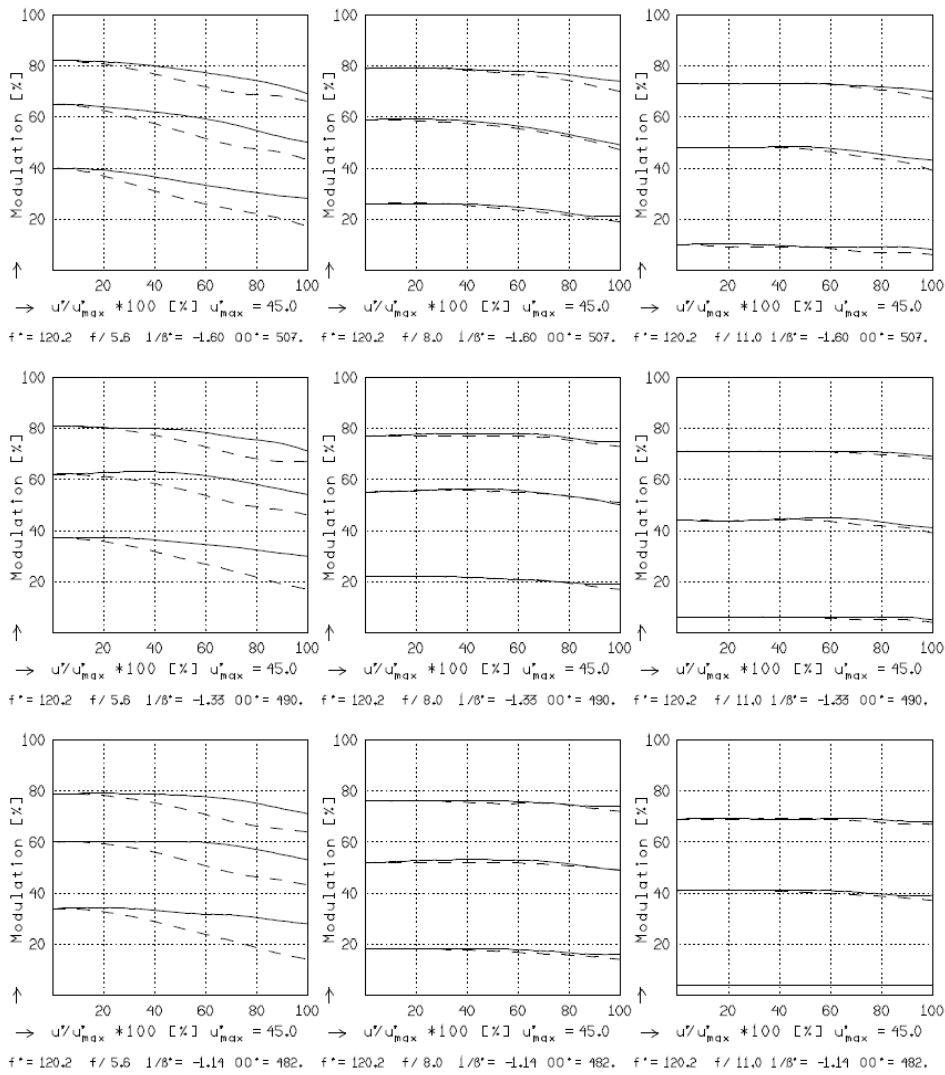
$f^* = 120.2 \text{ mm}$ $\beta_p = 0.994$
 $s_F = -94.8 \text{ mm}$ $s_{EP} = 26.1 \text{ mm}$
 $s_F^* = 94.1 \text{ mm}$ $s_{AP} = -25.4 \text{ mm}$
 $HH^* = -1.2 \text{ mm}$ $\Sigma d = 50.4 \text{ mm}$

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MODULATION with reference to the relative image height

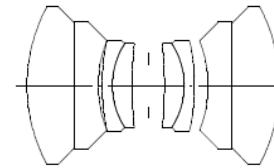
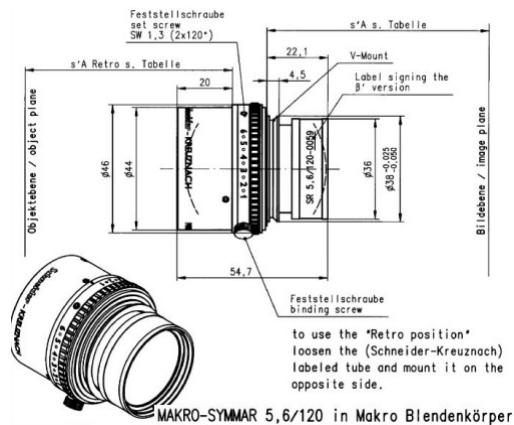
| | | | | | | |
|----------------------------|------|------|------|------|------|-----|
| Wavelength λ [nm] | 555 | 655 | 605 | 505 | 455 | 405 |
| Spectral weighting [%] | 19.6 | 23.7 | 22.2 | 15.7 | 12.1 | 6.7 |
| Spatial frequency R [1/mm] | 20 | 40 | 80 | | | |
| Format [mm X mm] | 90.0 | X | 0.0 | | | |
| Diagonal $2u'$ [mm] | 90.0 | | | | | |

radial —
 tangential - - -



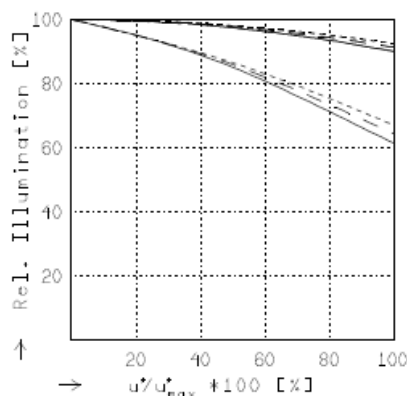
Focusing : MTF_{max} at $f / 5.6$ • $R = 80$ 1/mm. $u'/u'_{max} = 0$

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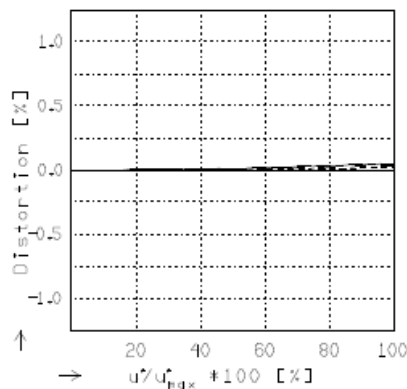


RELATIVE ILLUMINATION

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

$f / 5.6$ $f / 8.0$ $f / 11.0$

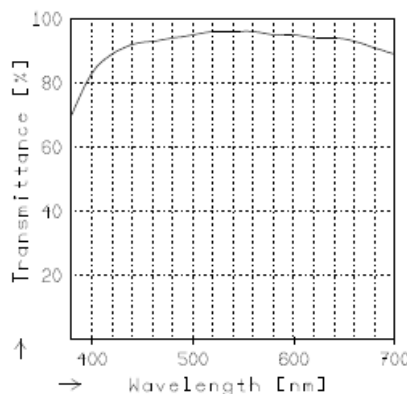
— $\beta' = -0.6250$ $u_{max}^* = 45.0$ $00^* = 507.$
 - - $\beta' = -0.7500$ $u_{max}^* = 45.0$ $00^* = 490.$
 - · - $\beta' = -0.8750$ $u_{max}^* = 45.0$ $00^* = 482.$



DISTORTION

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

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TRANSMITTANCE

Relative spectral transmittance is shown with reference to wavelength.