

No links to other lenses

Lenses for Digital Professional Photography

Apo-Sironar digital HR

The Rodenstock Apo-Sironar digital HR lens series was developed for special applications with extremely high resolution CCD chip backs with pixel sizes even smaller than 10 μm such as can only be realized with smaller digital camera formats. These lenses utilize every technological possibility to get as close as possible to the absolute limit of diffraction-determined resolution. Among other things, even the optical properties and the thickness of the CCD protective glass were taken into the equation of the optical correction.

The resolving power and lateral chromatic aberration have been optimized to ensure that the resulting lack of sharpness or the color fringes do not amount to any more than a tiny fraction of the pixel size (which can no longer be resolved). As a result, even when the digital photos taken with the lens are enlarged to a maximum on the screen, absolutely no color fringes are visible, unless color fringes are added by the pixel structure of a one-shot back used or due to interpolation.

The resolving power of the Apo-Sironar digital HR is not only a little better for the working apertures of 8 to 11 recommended for other high-performance lenses. You can rather see an increase in performance even with a higher aperture right up to the maximum f-stop 4. This increase is reflected in the very high brilliance and detail reproduction. To ensure that this fantastic quality is not impaired by diffraction, HR lenses should always be stopped down as little as possible. This means that the depth of field should be increased for motifs extended in depth by using an optimum lens tilt for an overall sharp focus.

The advantageous larger apertures also reduce color noise in the shadows.

| Apo-Sironar digital HR | Max. recommended format |
|------------------------|-------------------------|
|------------------------|-------------------------|

| | |
|------------|----------|
| 35 mm f/4 | 37×49 mm |
| 60 mm f/4 | 37×49 mm |
| 100 mm f/4 | 37×49 mm |



Data sheets

► [Formats, dimensions, shutter data, image circles, movement ranges](#)

► [Performance data 1](#)

► [Performance data 2](#)

Apo-Sironar digital HR: the optimum with a superior reserve in sharpness for high resolution digital backs

Apo-Sironar digital HR

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Formats, shutter sizes, dimensions, weight

| Lens | Maximum format | Shutter size | Push-on mount Ø | Filter thread | Rear barrel Ø | Flange foc. length ¹⁾ | Flange to lens end | Overall length | Weight w/Copal |
|------------|----------------|--------------|-----------------|---------------|---------------|----------------------------------|--------------------|----------------|----------------|
| 35 mm f/4 | 37×49 mm | 0 | 70 mm | M 67 × 0.75 | 48.0 mm | 53.0 mm | 29.2 mm | 80.4 mm | 480 g |
| 60 mm f/4 | 37×49 mm | 0 | 51 mm | M 49 × 0.75 | 42.0 mm | 64.3 mm | 24.0 mm | 57.6 mm | 240 g |
| 100 mm f/4 | 37×49 mm | 0 | 60 mm | M 58 × 0.75 | 42.0 mm | 99.4 mm | 73.4 mm | 22.1 mm | 370 g |

¹⁾ With Copal shutter for scale 1:∞

Shutter data

| Shutter type and size | Shutter speeds range | Manual cocking | Self cocking | Mechanical | Electronic | X-synchronized | Smallest f-stop increments | Screw thread | Lens board opening | Lens board thickness | Accessories required |
|-----------------------|-----------------------|----------------|--------------|------------|------------|----------------|----------------------------|--------------|--------------------|----------------------|----------------------|
| Copal 0 | B, T, 1/500 s ... 1 s | • | • | • | • | • | | M 32.5 × 0.5 | 34.8 mm | 1.5 ... 4.0 mm | |
| Copal Press 0 | B, 1/125 s ... 1 s | | • | • | • | • | | M 32.5 × 0.5 | 34.8 mm | 1.5 ... 3.0 mm | |
| Rollei Electron. 0 | B, 1/500 s ... 30 s | | | | • | • | 1/10 | M 39 × 0.75 | 41.8 mm | 1.5 ... 3.0 mm | Control Unit |

Working apertures, image angles, image circles and movement ranges

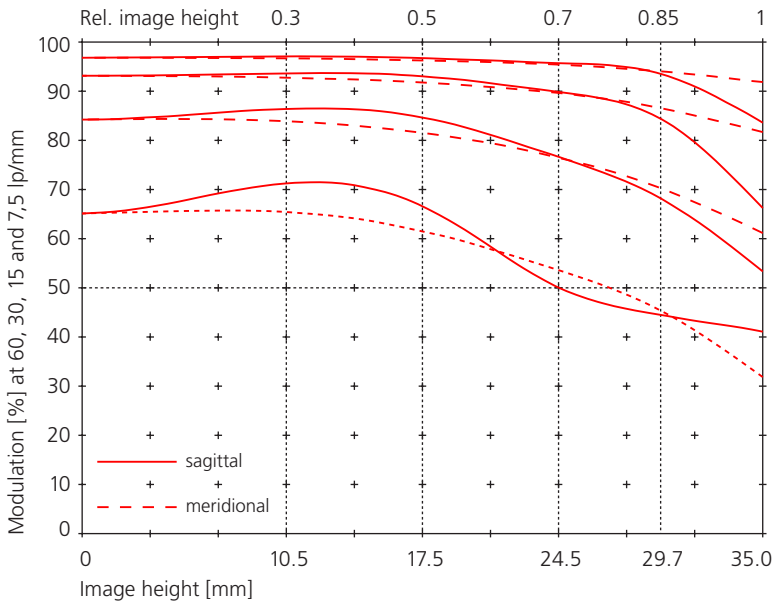
| Lens | Image scale | Working f-stop | Image angle | Image circle diameter | Movement range [mm] ²⁾ vertical/horizontal (landscape format) | | | | | |
|------------|-------------|----------------|-------------|-----------------------|--|----------|----------|----------|----------|----------|
| | | | | | 24×36 mm | 37×37 mm | 37×49 mm | 46×58 mm | 72×88 mm | 72×96 mm |
| 35 mm f/4 | 1:∞ | 5.6-8 | 90° | 70 mm | 18 / 15 | 11 / 11 | 6 / 5 | | | |
| 60 mm f/4 | 1:∞ | 5.6-8 | 60° | 70 mm | 18 / 15 | 11 / 11 | 6 / 5 | | | |
| 100 mm f/4 | 1:∞ | 5.6-8 | 39° | 70 mm | 18 / 15 | 11 / 11 | 6 / 5 | | | |

²⁾ These values apply to the recommended working aperture at the given scale; with increasing scale image circle and movement ranges increase

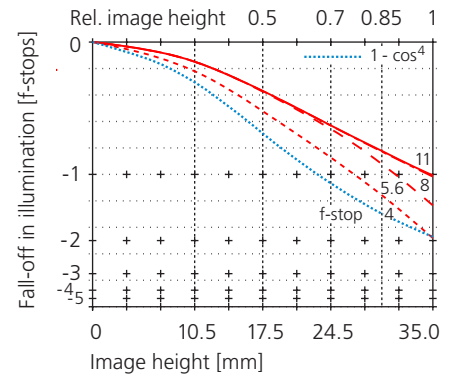
Apo-Sironar digital HR 35 mm f/4

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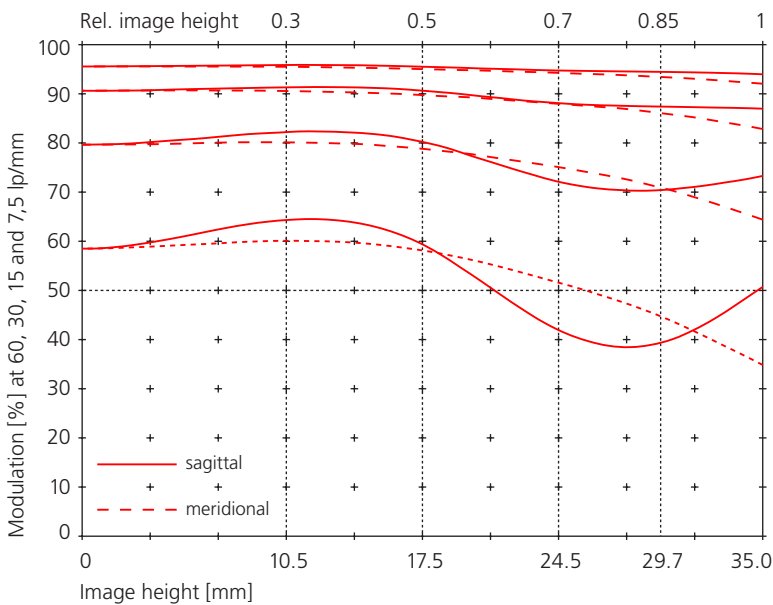
Modulation transfer function Scale 0.02x f-stop 5.6



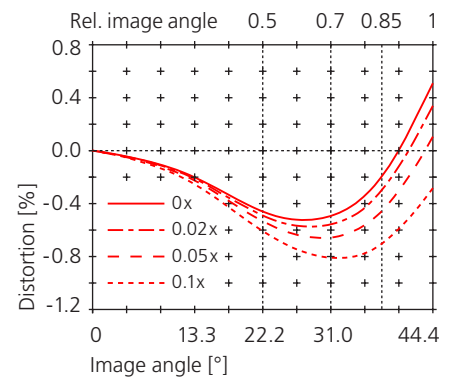
Fall-off in illumination Scale 0.02x



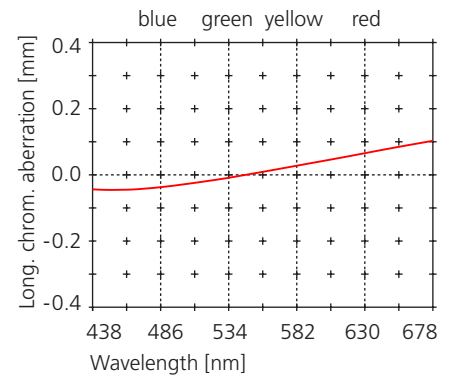
Modulation transfer function Scale 0.02x f-stop 8



Distortion Scale 0x ... 0.1x



Long. chrom. aberration Scale 0.02x

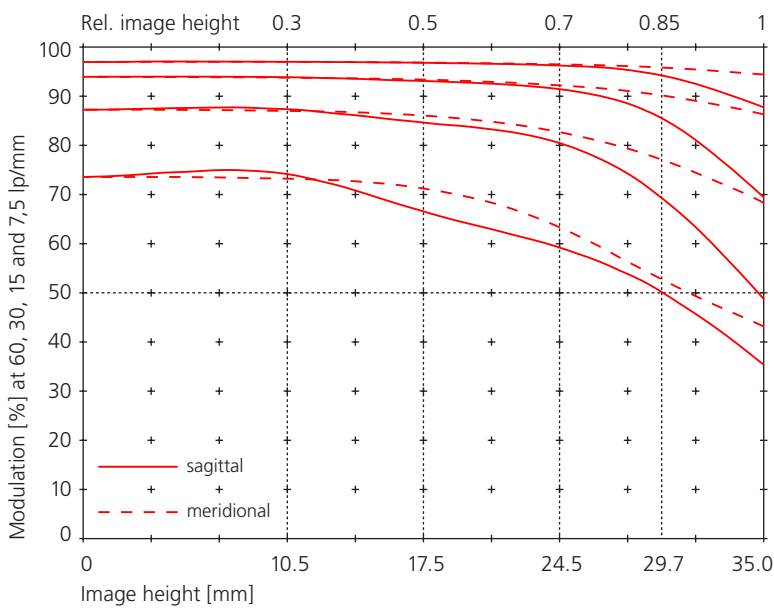


All spatial frequencies [line pairs/mm],
image heights [mm] and scales
are related to the film or sensor side

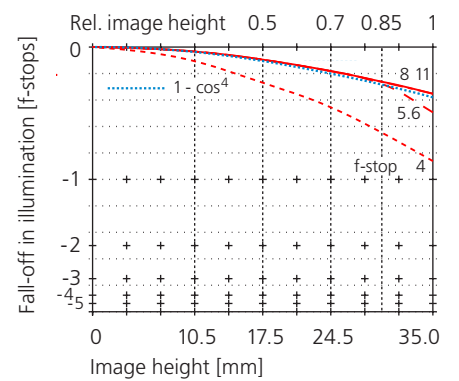
Apo-Sironar digital HR 100 mm f/4

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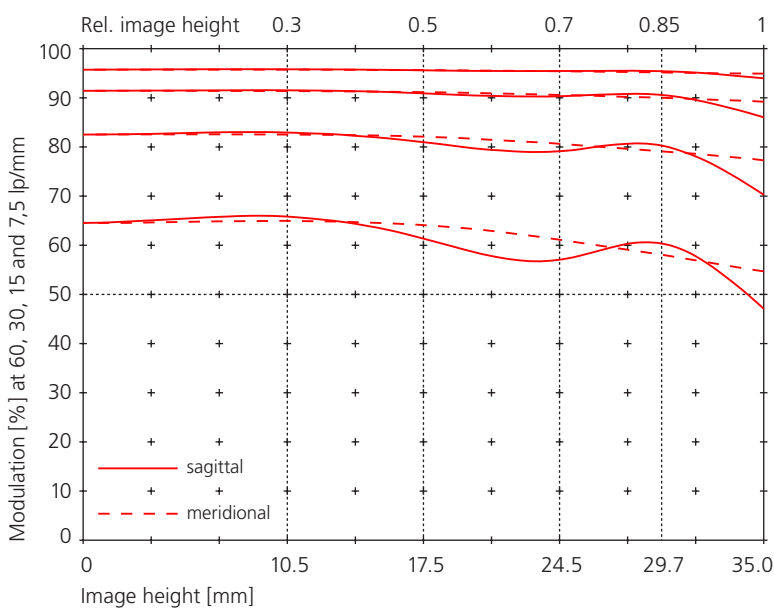
Modulation transfer function Scale 0.05x f-stop 5.6



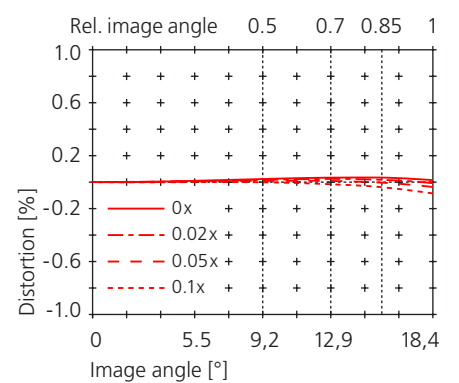
Fall-off in illumination Scale 0.05x



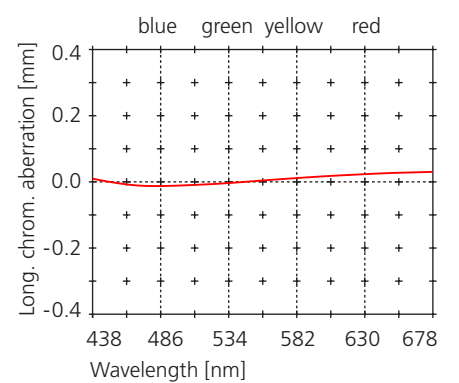
Modulation transfer function Scale 0.05x f-stop 8



Distortion Scale 0x ... 0.1x



Long. chrom. aberration Scale 0.05x



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