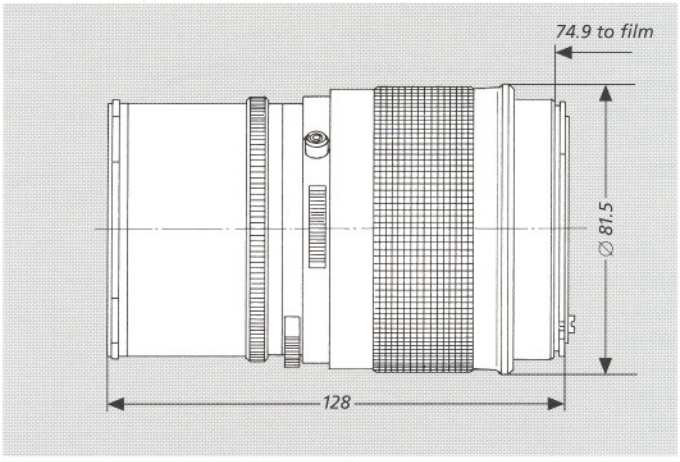
Sonnar® T* f/4 – 180 mm



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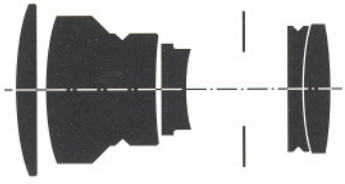


The Carl Zeiss 180 mm **Sonnar®** f/4 lens for the Hasselblad cameras of the 500 series offers the photographer greater possibilities in portraiture, sport, landscape and animal photography. This lens is the ideal complement to the 150 mm **Sonnar®** f/4 and 250 mm **Sonnar®** f/5.6 lenses from Carl Zeiss.

This **Sonnar®** lens provides superb image quality throughout the entire focusing range from infinity to 1.55 m.
Its length of 128 mm at the infinity setting makes this **Sonnar®** f/4 lens very compact for its focal length of 180 mm.

Cat. No. of lens:	**10 11 28**
Number of elements:	5
Number of groups:	4
Max. aperture:	f/4
Focal length:	179.4 mm
Negative size:	56.5 x 56.5 mm
Angular field 2w:	diagonal 24°, side 17°
Spectral range:	visible spectrum
Aperture scale:	4 – 5.6 – 8 – 11 – 16 – 22 – 32
Mount:	focusing mount with bayonet; coupling system for automatic diaphragm function
Shutter:	Prontor CF
Filter connection:	bayonet for Hasselblad series 60
Weight:	approx. 1,075 g

Focusing range:	∞ to 1.55 m
Reproduction ratio:	0 to 1:6.6
Close-limit field size:	370 x 370 mm
Entrance pupil:	
Position:	97.3 mm behind the first lens vertex
Diameter:	43.6 mm
Exit pupil:	
Position:	40.7 mm in front of the last lens vertex
Diameter:	31.6 mm
Position of principal planes:	
H:	26.9 mm behind the first lens vertex
H':	91.3 mm in front of the last lens vertex
Back focal distance:	88.2 mm
Distance between first and last lens vertex:	103.8 mm

Planar
100 Years

ZEISS

Performance data:
Sonnar® T* f/4 – 180 mm
No. 101128

1. MTF Diagrams

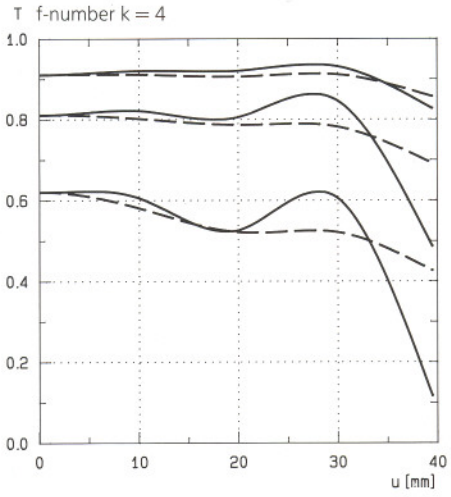
The image height u – calculated from the image center – is entered in mm on the horizontal axis of the graph. The modulation transfer T (MTF = Modulation Transfer Factor) is entered on the vertical axis. Parameters of the graph are the spatial frequencies R in cycles (line pairs) per mm given at the top of this page.
The lowest spatial frequency corresponds to the upper pair of curves, the highest spatial frequency to the lower pair. Above each graph, the f-number k is given for which the measurement was made. "White" light means that the measurement was made with a subject illumination having the approximate spectral distribution of daylight.

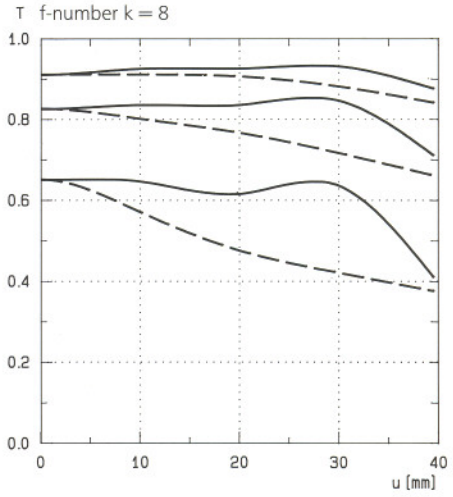
Unless otherwise indicated, the performance data refer to large object distances, for which normal photographic lenses are primarily used.

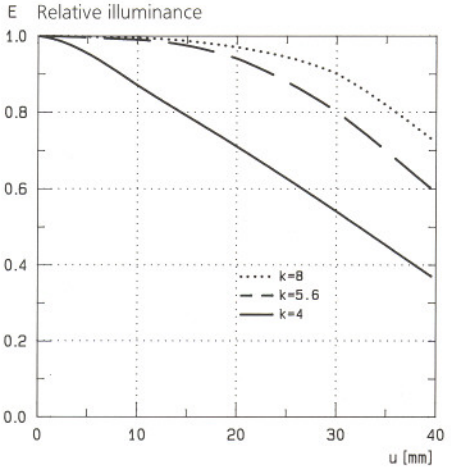
2. Relative illuminance

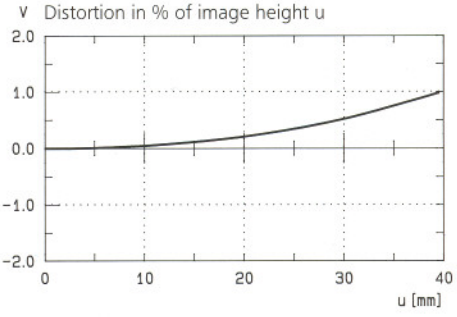
In this diagram the horizontal axis gives the image height u in mm and the vertical axis the relative illuminance E, both for full aperture and a moderately stopped-down lens. The values for E are determined taking into account vignetting and natural light decrease.

Modulation transfer T as a function of image height u. Slit orientation: tangential — — — sagittal ———
White light. Spatial frequencies R = 10, 20 and 40 cycles/mm









3. Distortion

Here again the image height u is entered on the horizontal axis in mm. The vertical axis gives the distortion V in % of the relevant image height. A positive value for V means that the actual image point is further from the image center than with perfectly distortion-free imaging (pincushion distortion); a negative V indicates barrel distortion.

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Subject to change.

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