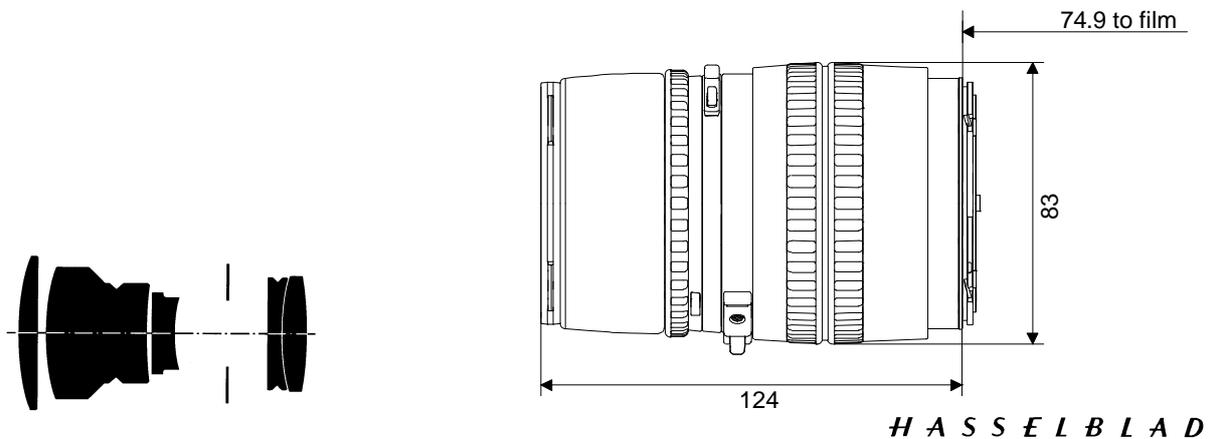


Sonnar® T* 4/180 CFE



The Sonnar® T* 4/180 CFE lens is often compared with the Sonnar® T* 4/150 CFi lens. It offers 30 mm more focal length, which doesn't seem to be much of a difference at first glance. Who ever experienced both lenses knows, there really is a clear difference in angle of view. There is another significant difference: The optics of the Sonnar® T* 4/180 CFE lens, although optimized for infinity, were designed with special attention to close-up performance. This results in a lens that gained high popularity with demanding fashion- and beauty photographers worldwide. With this lens the optic designers managed to achieve a correction so high, that it can be used for

demanding product shots that need a focal length clearly longer than the Carl Zeiss Makro-Planar® T* 4/120 CFE lens offers. The optical materials chosen make this lens very unsusceptible to thermal fluctuations, so it can safely be used in radiant heat from direct summer sunshine, heavy industry furnaces, jet propulsion test beds, rocket launch sites and the like. In fact, the Sonnar® T* 4/180 CFE lens is a proven general purpose telephoto lens with stunning performance.

Preferred use: beauty, fashion, products, portraits, weddings, industrial

Cat. No. of lens	10 11 32		
Number of elements	5	Close limit field size	361 mm x 361 mm
Number of groups	4	Max. scale	1 : 6.6
Max. aperture	f/4	Entrance pupil*	
Focal length	179.4 mm	Position	97.1 mm behind the first lens vertex
Negative size	55 x 55 mm	Diameter	43.6 mm
Angular field 2w*	width 18°, height 18°, diagonal 24°	Exit pupil*	
Min. aperture	32	Position	40.6 mm in front of the last lens vertex
Camera mount	CFE	Diameter	31.5 mm
Shutter	Prontor CFE 1s-1/500s, b, f	Position of principal planes	
Filter connection	bayonett series 60	H	26.7 mm behind the first lens vertex
Focussing range	infinity to 1.55 m	H'	91.3 mm in front of the last lens vertex
Working distance (between mechanical front end of lens and subject)	1.3 m	Back focal distance	88.2 mm
		Distance between first and last lens vertex	103.8 mm
		Weight	1080 g

* at infinity



Performance data:

Sonnar[®] T* 4/180 CFE

Cat. No. 10 11 32

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.

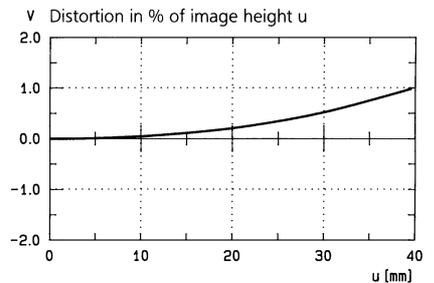
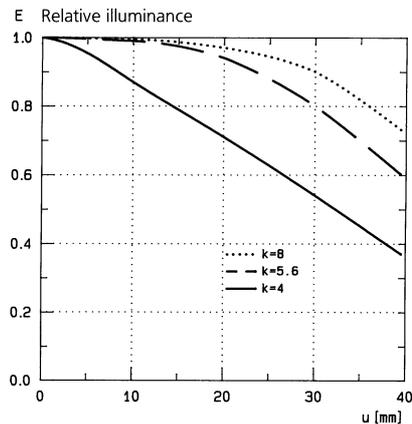
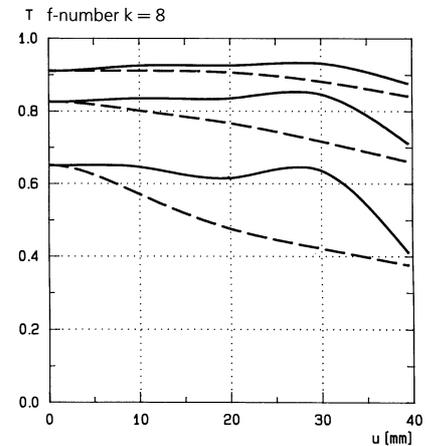
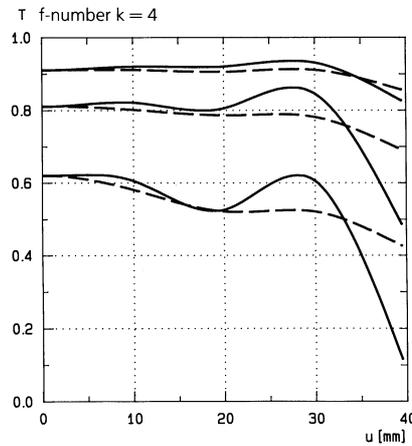
2. Relative illuminance

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.

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.

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



Subject to change.

Printed in Germany 29.05.2002



Carl Zeiss
Camera Lens Division
73446 Oberkochen
Germany
Telephone ++49-7364-20-6175
Fax ++49-7364-20-4045
eMail: photo@zeiss.de
<http://www.zeiss.de/photo>