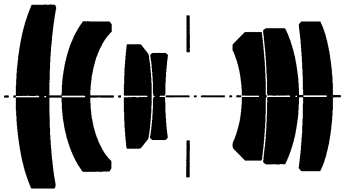
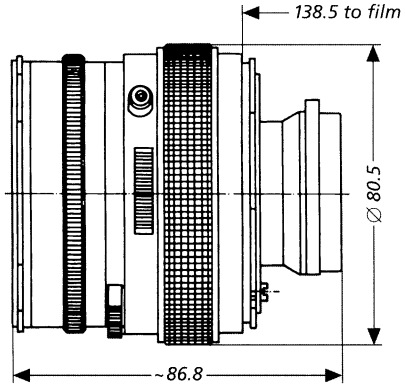
Makro-Planar® T* 5.6/135 CF





HASSELBLAD

This is the other close-up specialist in the Carl Zeiss lens range for Hasselblad cameras. The optical characteristic of the **Makro-Planar**® T* 5.6/135 lens is very similar to that of the **Makro-Planar**® T* 4/120 lens. However, there is a significant difference: The **Makro-Planar**® T* 5.6/135 lens comes without focusing device. This is because this lens is designed to be used with the Hasselblad bellows extension.

In this combination the photographer has a camera that can quickly focus from infinity down to life size without any further accessories. Also, it is eqipped with a fast central shutter, offering flash synchronisation to 1/500 s. This high performance combination is unique in medium format and proves very useful in scientific, industrial, technical, and nature photography on location and in the studio.
Preferred use: Close-ups of all kind, documentation, nature, scientific, digital photography

---

Cat. No. of lens	**10 78 24**
Number of elements	7
Number of groups	5
Max. aperture	f/5.6
Focal length	137.1 mm
Negative size	55 x 55 mm
Angular field*	width 23°, height 23°, diagonal 31°
Min. aperture	45
Camera mount	CF
Shutter	Prontor CF
Filter connection	bayonett series 60
Focusing range	infinity to 0.54 m
Working distance (between mechanical front end of lens and subject)	0.2 m
Close limit field size	55 mm x 55 mm
Max. scale	1 : 1
Entrance pupil*	
Position	47.4 mm behind the first lens vertex
Diameter	24.1 mm
Exit pupil*	
Position	47.3 mm in front of the last lens vertex
Diameter	28.4 mm
Position of principal planes	
H	67.6 mm behind the first lens vertex
H'	23.5 mm in front of the last lens vertex
Back focal distance*	113.6 mm
Distance between first and last lens vertex	80.2 mm
Weight	620 g

---

* for image scale 1 : infinity

ZEISS

Performace data:

Makro-Planar® T* 5.6/135 CF

Cat. No. 10 78 24

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 = M odulation 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.

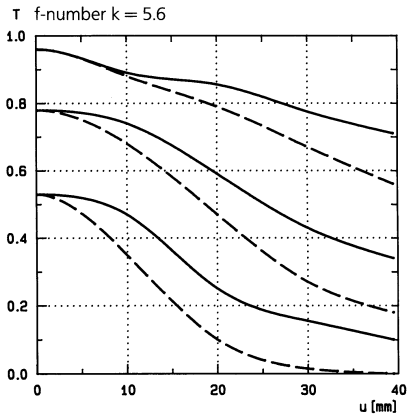
2. Relative illuminance

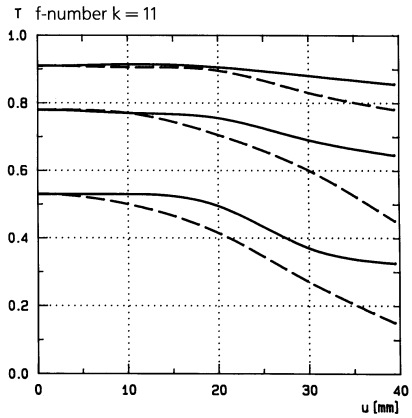
In this diagram the horizontal axis gives the image height u in mm and the vertical axis the relative illuminance E, both for full aperture and a moderately stopped-down lens. The values for E are determined taking into account vignetting and natural light decrease.

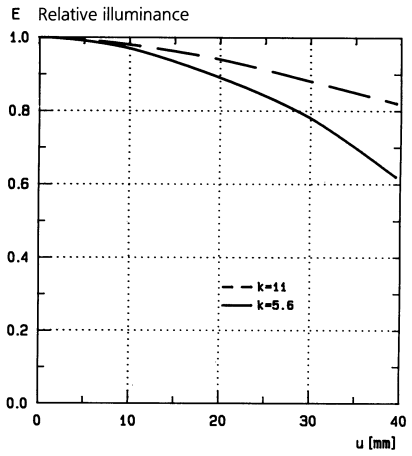
3. Distortion

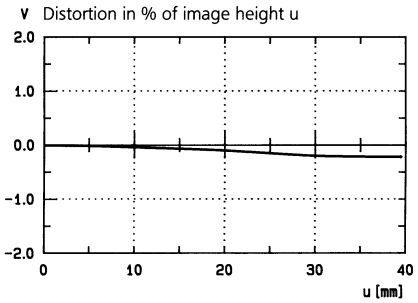
Here again the image height u is entered on the horizontal axis in mm. The vertical axis gives the distortion V in % of the relevant image height. A positive value for V means that the actual image point is further from the image center than with perfectly distortion-free imaging (pincushion distortion);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





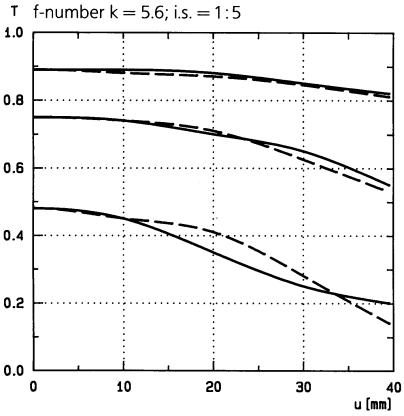


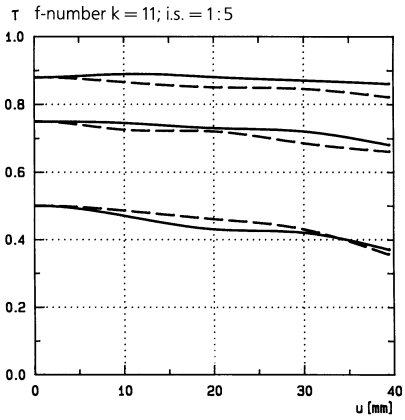


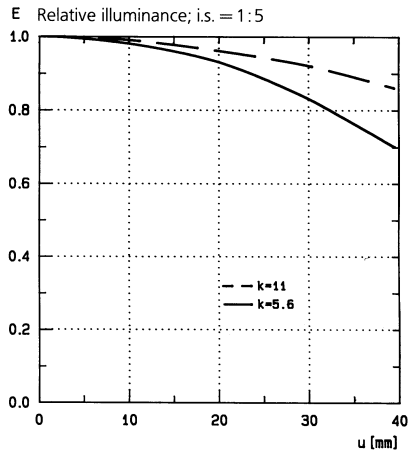
Performace data:

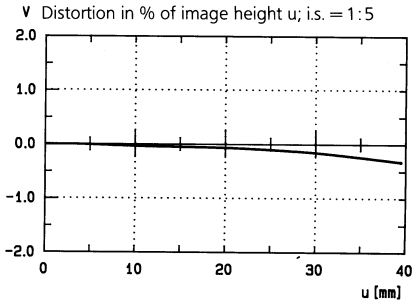
Makro-Planar® T* 5.6/135 CF

Cat. No. 10 78 24









i.s. = image scale

Subject to change.
Printed in Germany 29.05.2000

Carl Zeiss
Photoobjektive
D-73446 Oberkochen
Telephone (07364) 20-6175
Fax (07364) 20-4045
eMail: photo@zeiss.de
http://www.zeiss.de