Planar T*
f/2.8–80 mm
Cat. No. 102109

HASSELBLAD

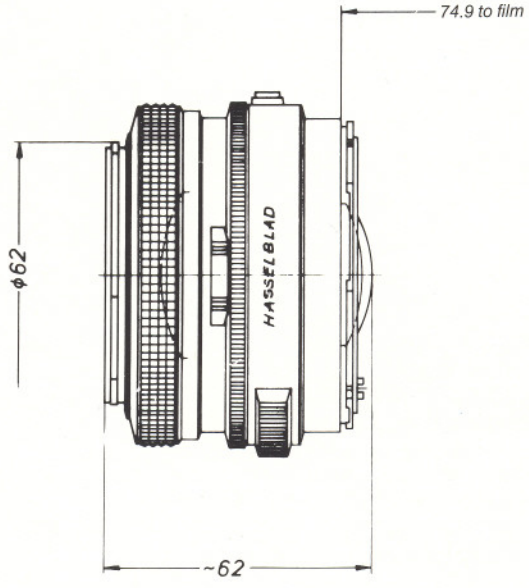
ZEISS

Carl Zeiss
D-7082 Oberkochen
West Germany

The optical design of the **Planar** T* f/2.8–80 mm lens for the Hasselblad 2000 FC is the same as that of its sister lens for the Hasselblad 500 C/M and 500 EL/M versions which has successfully stood the test of many NASA space flights round the earth and to the moon.

Compared with the 500 C version the extension of the helical focusing mount and thus the range of the distance setting have been considerably increased. The shortest distance of 0.6 m settable between object and film plane is equivalent to an image scale of 1 : 5.5. At this distance an object field of 310 x 310 mm fills the format from edge to edge.

This lens can virtually be used in all fields of general photography.



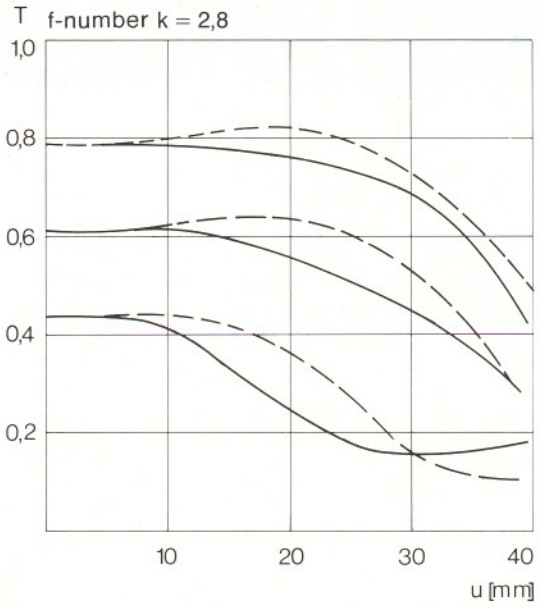
Number of lens elements:	7
Number of components:	5
f-number:	2.8 mm
Focal length:	80.5 mm
Negative size:	56.5 x 56.5 mm
Angular field 2w:	diagonal 52°, side 38°
Spectral range:	visible spectrum
f-stop scale:	2.8 - 4 - 5.6 - 8 - 11 - 16 - 22
Mount:	focusing mount with bayonet; coupling system for automatic diaphragm function
Filter mount:	bayonet for Hasselblad series 50
Weight:	approx. 410 g

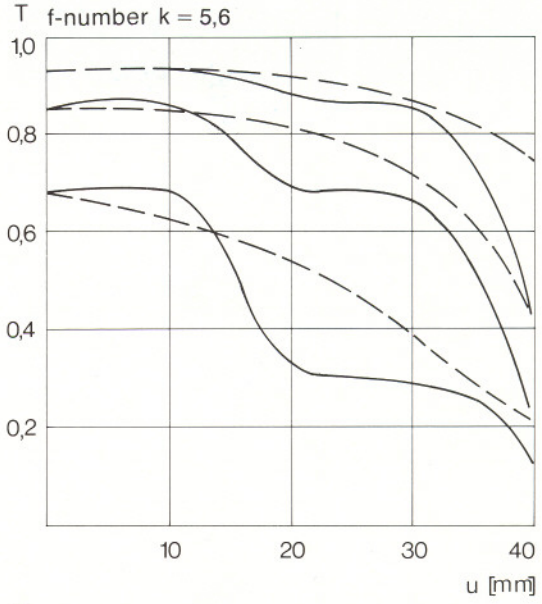
Distance range:	0.6 m (2′)
Smallest object field:	310 x 310 mm (12.2″ x 12.2″)
Position of entrance pupil:	26.6 mm behind the first lens vertex
Diameter of entrance pupil:	28.8 mm
Position of exit pupil:	25.7 mm in front of the last lens vertex
Diameter of exit pupil:	34.5 mm
Position of principal plane H:	39.0 mm behind the first lens vertex
Position of principal plane H′:	10.8 mm in front of the last lens vertex
Distance between first and last lens vertex:	46.4 mm

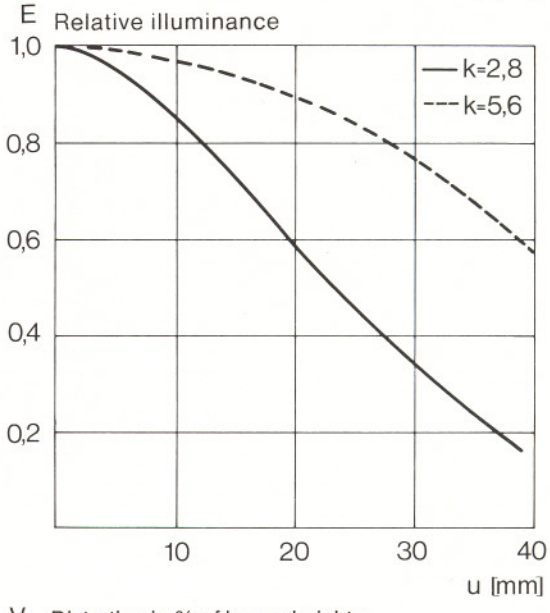
Performance data: **Planar** T* f/2.8–80 mm Cat. No. 10 21 09

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





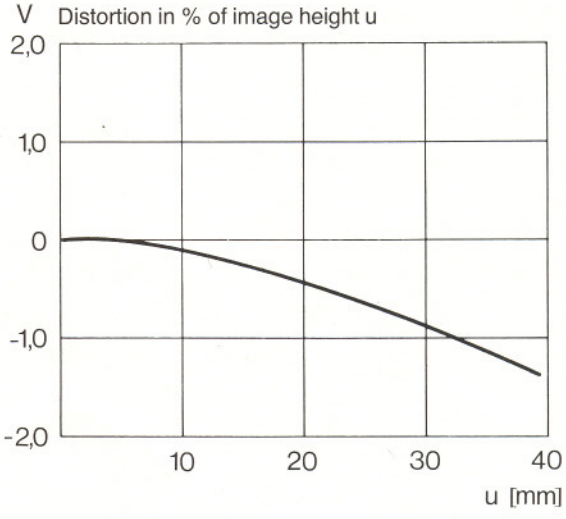


1. MTF Diagrams
The image height u – reckoned from the image center – is entered in mm on the horizontal axis of the graph. The modulation transfer T (MTF = **M**odulation **T**ransfer **F**actor) is entered on the vertical axis. Parameters of the graph are the spatial frequencies R in cycles (line pairs) per mm given at the top right hand above the diagrams.
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.



Subject to technical amendment