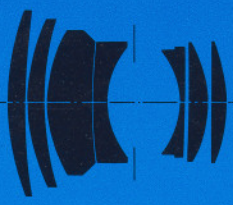
Planar T*
f/2–110 mm
Cat. No. 102150

HASSELBLAD



ZEISS

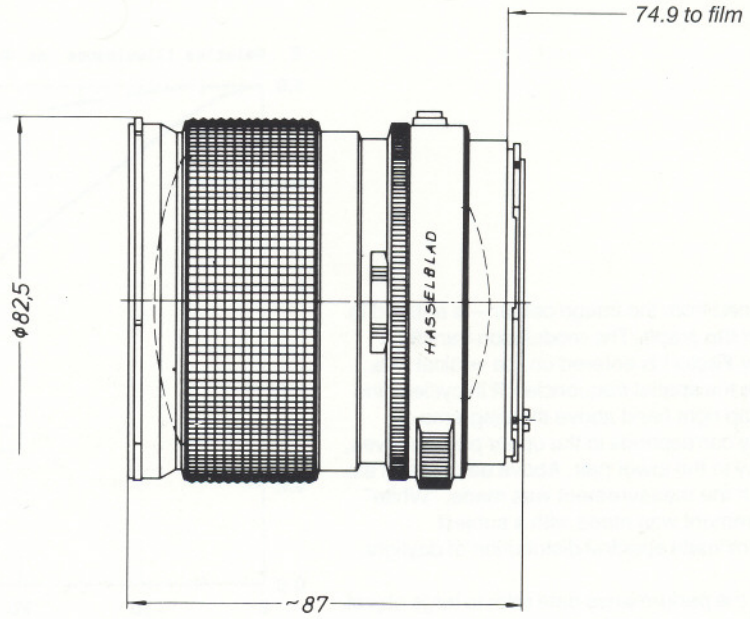
Carl Zeiss
D-7082 Oberkochen
West Germany

The 110 mm **Planar** T* f/2 lens is a fast high-performance lens for the Hasselblad 2003 FCW with focal-plane shutter.

This 7-element **Planar** lens is an advance on the classic **Planar** lens developed at Zeiss, which for the first time offered an excellent anastigmatic flatness of the image field for a fairly large angular field.

The correction potential of this lens type at a focal length of 110 mm and a speed of f/2 could be fully used as no complicated installation conditions had to be met. The result is a lens distinguished by a uniform and superior definition over the entire image field.

The angular field of the lens referred to the diagonal of the negative is about 40°. The distance setting goes down from infinity to a minimum focus of 0.8 m measured from the film plane. This is equivalent to an image scale of 1:5.2 and a smallest object field of approx. 294 x 294 mm. The speed, the angular field and the excellent image quality make this **Planar** lens most versatile. Its main field of application will be sports and press photography with extremely short exposure times, hand-held shots even under unfavourable lighting conditions, photographs of individual persons and groups as well as portrait photography.



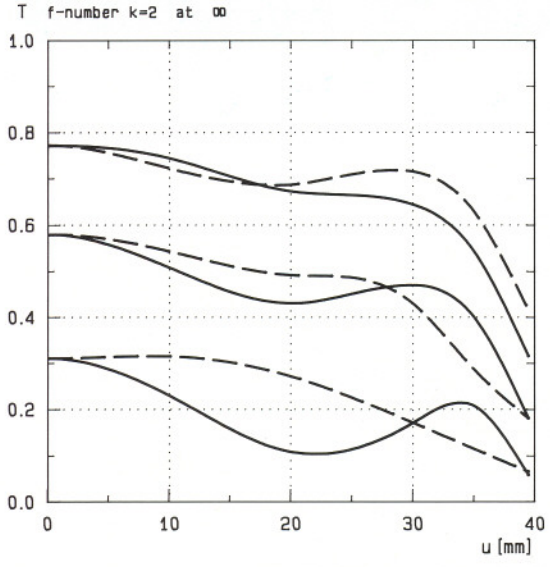
Number of elements:	7
Number of groups:	6
Max. aperture:	f/2
Focal length:	110.8 mm
Negative size:	56.5 x 56.5 mm
Angular field 2 w:	diagonal 40°, side 28.5°
Spectral range:	visible spectrum
Aperture scale:	2 – 2.8 – 4 – 5.6 – 8 – 11 – 16
Mount:	focusing mount with bayonet; coupling system for automatic diaphragm function
Shutter:	–
Filter connection:	bayonet, size B 77
Weight:	approx. 750 g

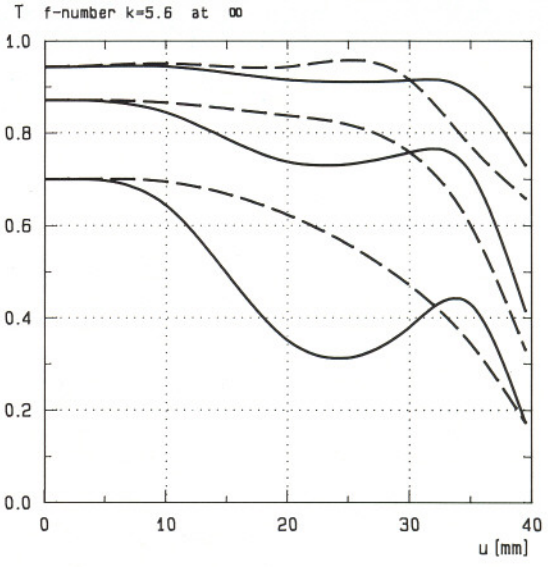
Focusing range:	∞ to 0.8 m (2.75″)
Smallest object field:	294 mm x 294 mm (11.6″ x 11.6″)
Position of entrance pupil:	55.2 mm behind the first lens vertex
Diameter of entrance pupil:	53.8 mm
Position of exit pupil:	39.3 mm in front of the last lens vertex
Diameter of exit pupil:	58.4 mm
Position of principal plane H:	60.8 mm behind the first lens vertex
Position of principal plane H′:	33.4 mm in front of the last lens vertex
Distance between first and last lens vertex:	74.4 mm

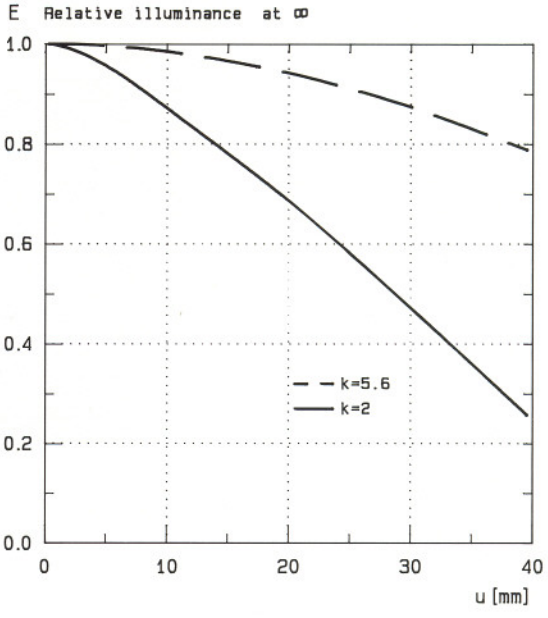
Performance data: **Planar** T* f/2–110 mm Cat. No. 10 21 50

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





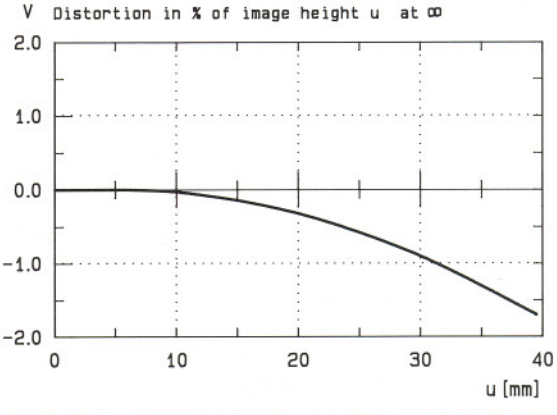


1. MTF Diagrams
The image height u – reckoned from the image center – is entered in mm on the horizontal axis of the graph. The modulation transfer T (MTF = **M**odulation **T**ransfer **F**actor) is entered on the vertical axis. Parameters of the graph are the spatial frequencies R in cycles (line pairs)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