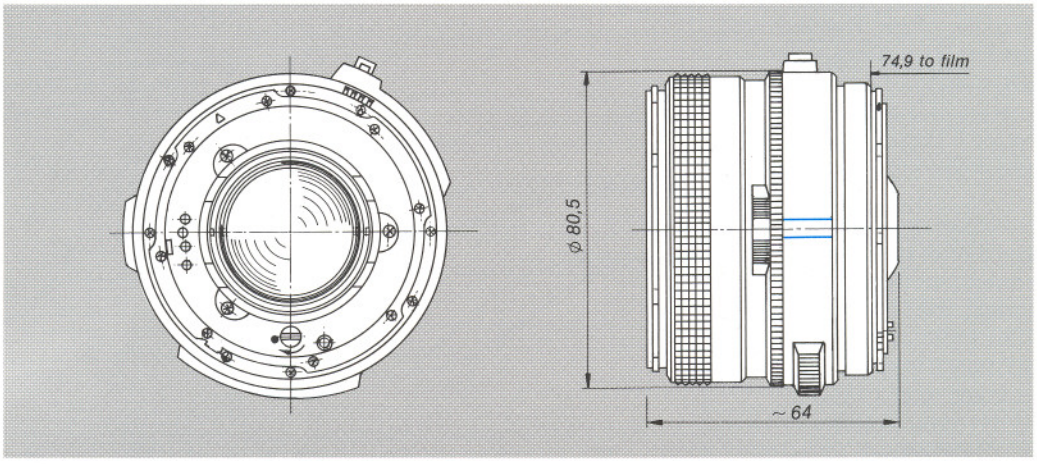
# Planar® T* f/2.8 – 80 mm

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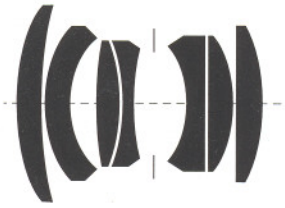


The 80 mm **Planar**® T* f/2.8 lens as per drawing 102178 has been designed for the 200-series cameras from Hasselblad. Its optical design is the same as that of its sister lens for the 500-series cameras from Hasselblad, which has been successfully used in many NASA space flights around the earth and to the moon.

Compared with its predecessor, the extension of the helical focusing mount of this lens and thus the range of the focusing range have been considerably increased. The shortest attainable distance of 0.6 m between object and film plane is equivalent to a 1:5.5 scale of reproduction. At this distance an object of 310 x 310 mm fills the format from edge to edge.

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

| | |
|---|---|
| **Cat. No. of lens:** | **102178** |
| Number of elements: | 7 |
| Number of groups: | 5 |
| Max. aperture: | f/2.8 |
| Focal length: | 80.5 mm |
| Negative size: | 56.5 x 56.5 mm |
| Angular field 2w: | diagonal 52°, side 38° |
| Spectral range: | visible spectrum |
| Aperture scale: | 2.8 – 4 – 5.6 – 8 – 11 – 16 – 22 |
| Mount: | focusing mount with bayonet; coupling system for automatic diaphragm function |
| Shutter: | – |
| Filter mount: | bayonet for Hasselblad series 50 |
| Weight: | approx. 410 g |

| | |
|---|---|
| Focusing range: | ∞ to 0.6 m |
| Close-limit field size: | 310 x 310 mm |
| Entrance pupil: | |
| Position: | 26.6 mm behind the first lens vertex |
| Diameter: | 28.8 mm |
| Exit pupil: | |
| Position: | 25.7 mm in front of the last lens vertex |
| Diameter: | 34.5 mm |
| Position of principal planes: | |
| H: | 39.0 mm behind the first lens vertex |
| H': | 10.8 mm in front of the last lens vertex |
| Back focal distance: | 69.9 mm |
| Distance between first and last lens vertex: | 46.4 mm |

ZEISS

# Performance data:
# Planar® T* f/2.8 – 80 mm
# No. 102178

## 1. MTF Diagrams

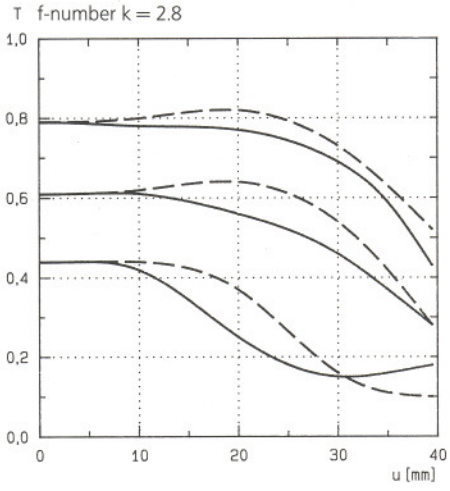
The image height u – calculated from the image center – is entered in mm on the horizontal axis of the graph. The modulation transfer T (MTF = **M**odulation **T**ransfer **F**actor) is entered on the vertical axis. Parameters of the graph are the spatial frequencies R in cycles (line pairs) per mm given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

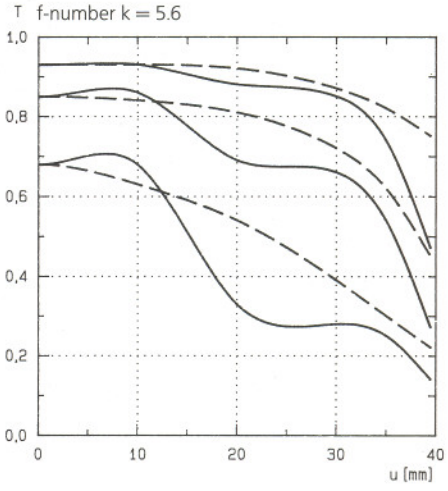
Unless otherwise indicated, the performance data refer to large object distances, for which normal photographic lenses are primarily used.

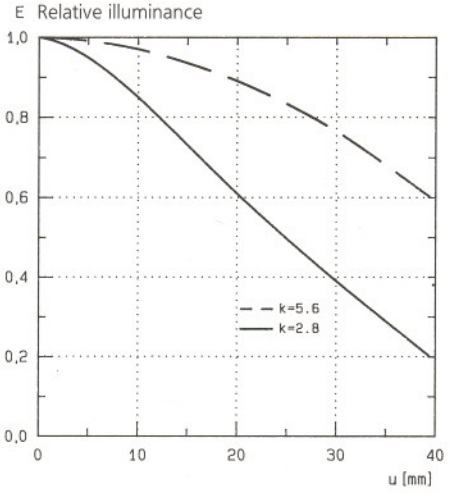
## 2. Relative illuminance

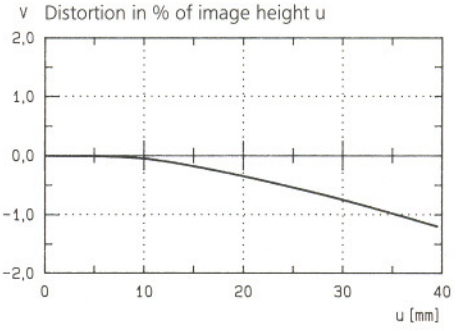
In this diagram the horizontal axis gives the image height u in mm and the vertical axis the relative illuminance E, both for full aperture and a moderately stopped-down lens. The values for E are determined taking into account vignetting and natural light decrease.

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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