Distagon T*
f/2.8–50 mm
Cat. No. 104854

HASSELBLAD

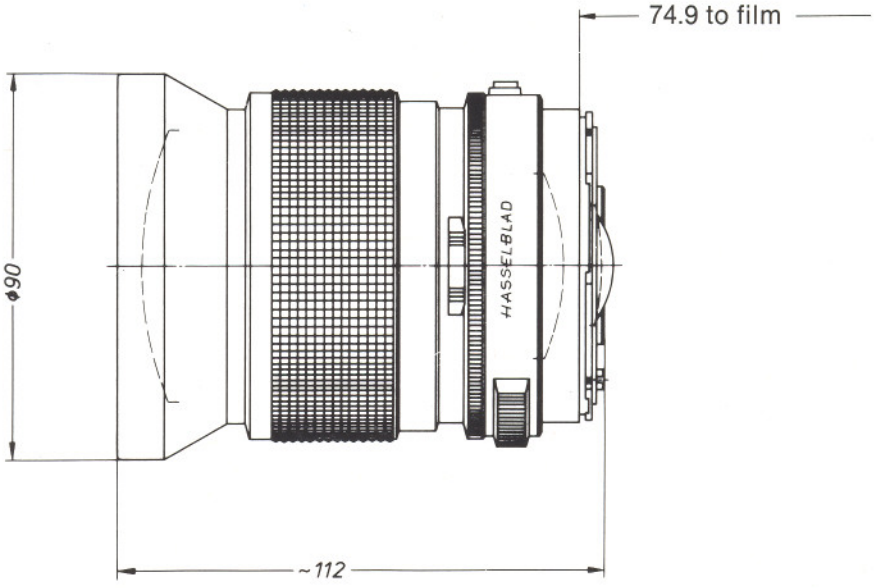
ZEISS

Carl Zeiss
D-7082 Oberkochen
West Germany

The **Distagon** T* f/2.8–50 mm lens with an angular field of 75° is a top class ultra wide-angle lens especially developed for the Hasselblad 2000 FC. As this camera has a focal-plane shutter the speed could be increased to f/2.8 which is quite an outstanding value for a wide-angle lens for this medium film size.

Thanks to the superb correction of distortion and all monochromatic and chromatic aberrations the imaging performance of this lens is excellent. Finally, the new design with nine lens elements is remarkably compact despite the speed and large angular field. This is a particular achievement in view of the fact that – owing to the mirror motion – the distance of the last lens surface from the film must be about 35% longer than the focal length.

As is widely known, wide-angle reflex lenses suffer from a loss in imaging performance in the marginal areas which becomes all the more noticeable the greater the speed and angular field. This often forces the photographer to do without extreme close-ups.
To compensate for the decrease in imaging performance the optical design was made such that the middle components change position in relation to each other when focusing. So this lens features a shortest object distance of 0.32 m which is equivalent to an image scale of 1 : 2.5. The image quality provided at this distance is about the same as that at image scale 1 : 10 without compensation.



Number of lens elements:	9
Number of components:	8
f-number:	2.8
Focal length:	51.7 mm
Negative size:	56.6 x 56.6 mm
Angular field 2 w:	diagonal 75.5°, side 57°
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:	screw thread M 86 x 1
Weight:	approx. 1240 g

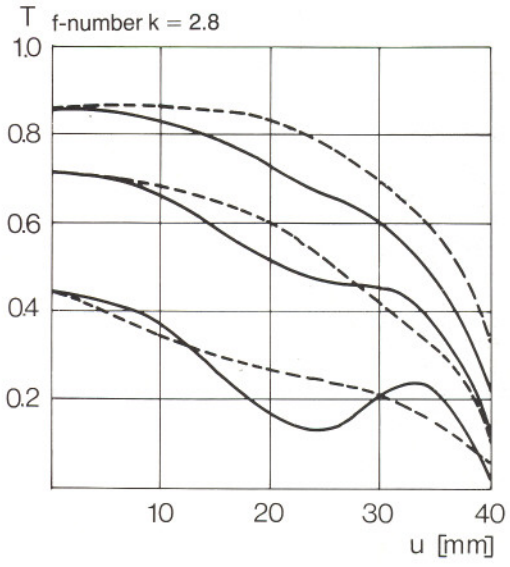
Distance range:	∞ to 0.32 m (13″)
Smallest object field:	144 x 144 mm (5.7″)
Aberration correction for close range by floating element	
Position of entrance pupil*:	39.2 mm behind the first lens vertex
Diameter of entrance pupil:	18.2 mm
Position of exit pupil*:	20.3 mm in front of the last lens vertex
Diameter of exit pupil:	32.1 mm
Position of principal plane H*:	61.2 mm behind the first lens vertex
Position of principal plane H′*:	18.1 mm behind the last lens vertex
Distance between first and last lens vertex*:	105.9 mm

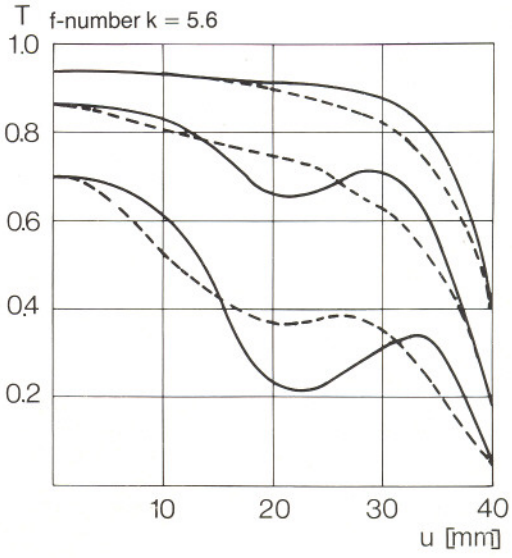
*Data valid for ∞

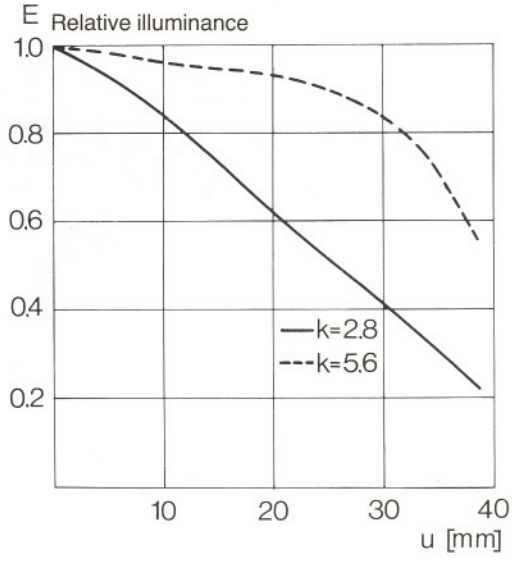
Performance data: **Distagon** T* f/2.8–50 mm Cat. No. 104854

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





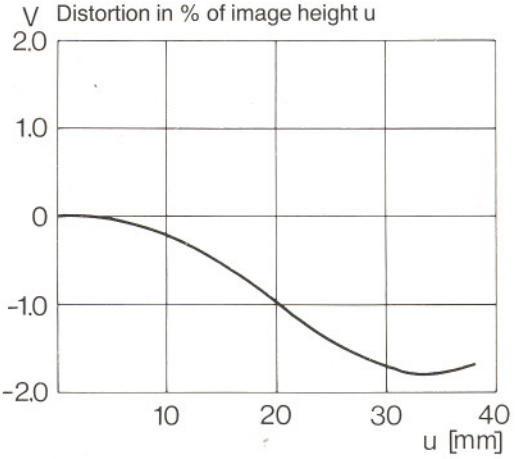


1. MTF Diagrams
The image height u – reckoned from the image center – is entered in mm on the horizontal axis of the graph. The modulation transfer T (MTF = **M**odulation **T**ransfer **F**actor) is entered on the vertical axis. Parameters of the graph are the spatial frequencies R in cycles (line pairs)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