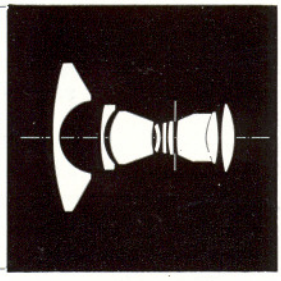
ZEISS

F-Distagon f/3.5 – 30 mm
Cat. No. 104813



HASSELBLAD

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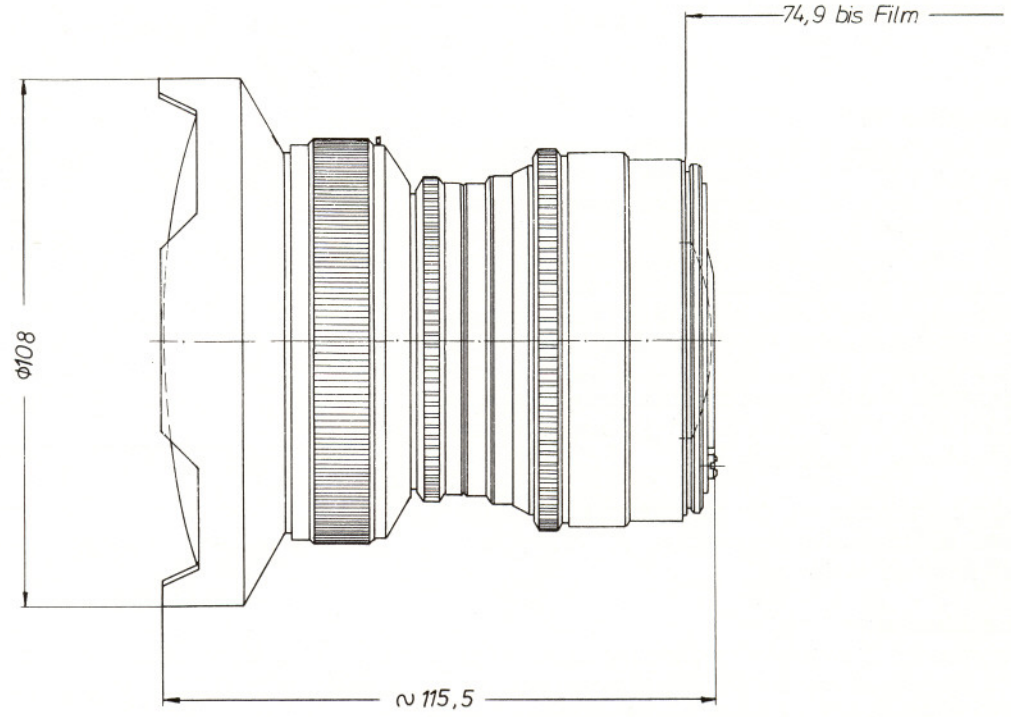
With its angular field of 180° of the image field diagonal, this fisheye lens covers the entire 6 x 6 cm format.

Owing to the extremely large angular field photographs taken with this lens supply ample information even of narrow interiors. Its outstanding image quality offers the creative photographer new possibilities. The excellent correction of this lens results in outstanding sharpness, even at initial aperture.

Four special filters (neutral glass and three color filters) are supplied with each lens. These filters are built into the lens and are fixed to the front component, because even the largest attachment filter would occlude the 180° angular field. The filter is part of the optical system. Either the neutral glass or one of the color filters must always be mounted in the lens. To exchange filters, the front component with bayonet mount is removed.



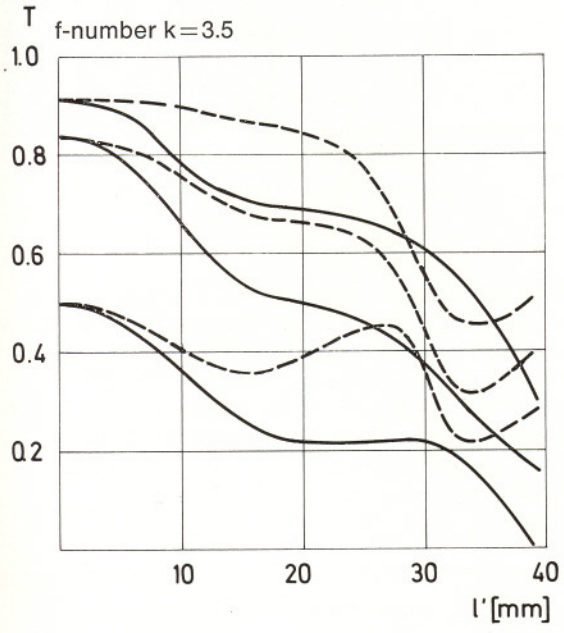
Number of lens elements:	8
Number of components:	7
f-number:	3.5
Focal length:	30.6 mm
Negative size:	56.5 x 56.5 mm
Angular field 2 w:	diagonal 180°, side 112°
Spectral range:	visible spectrum
f-stop scale:	3.5 - 4 - 5.6 - 8 - 11 - 16 - 22
Mount:	Compur interchangeable reflex shutter size 0 with automatic iris diaphragm
Filter mounting:	filter thread M 24 x 0.5 mm, exchangeable after loosening of front component
Weight:	1370 g

Distance range:	∞ to 0.3 m
Automatic depth-of-field indication for z = 0.06 mm *)	
Position of entrance pupil:	28.5 mm behind the first lens vertex
Diameter of entrance pupil:	8.5 mm
Position of exit pupil:	35.9 mm in front of the last lens vertex
Diameter of exit pupil:	29.9 mm
Position of principal plane H:	50.4 mm behind the first lens vertex
Position of principal plane H′:	40.2 mm behind the last lens vertex
Distance between first and last lens vertex:	113.8 mm

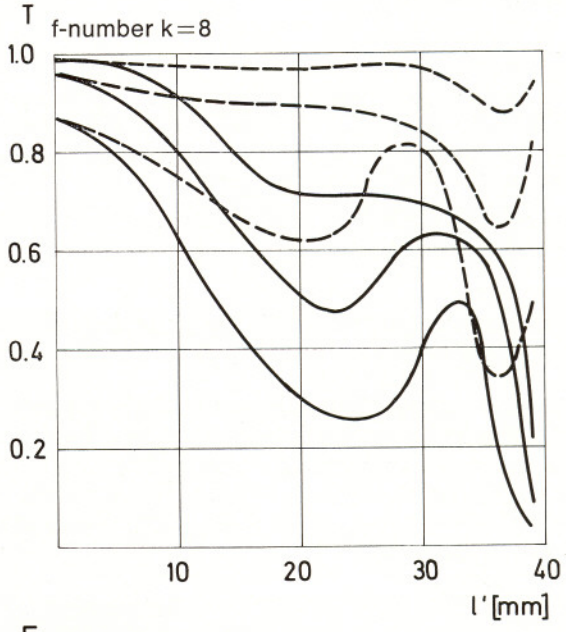
*) z = circle-of-confusion diameter

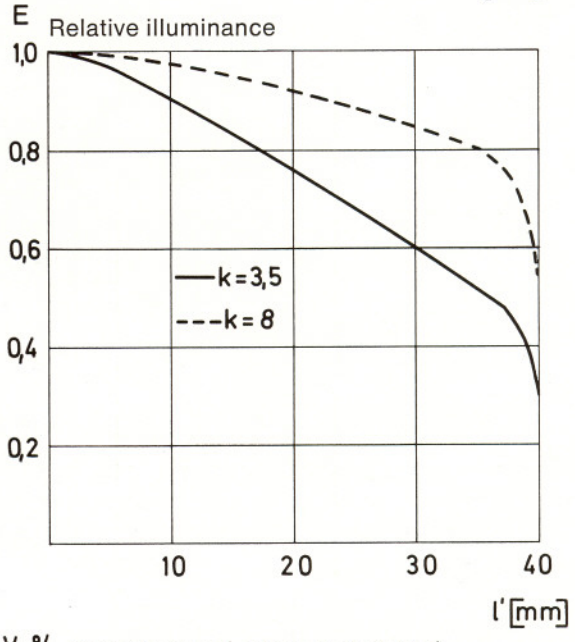
Performance data: F-Distagon f/3.5 – 30 mm Cat. No. 104813

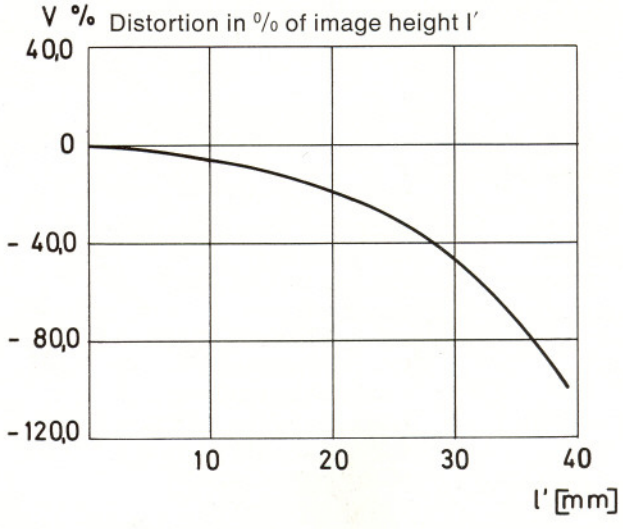
Modulation transfer T as a function of image height l′
Slit orientation tangential ————
sagittal — — — —



White light
Spatial frequencies R = 10 periods/mm 20 periods/mm 40 periods/mm







1. MTF Diagrams
The image height l′ — 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 periods (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 l′ 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. The natural light decrease increases with the factor "$\cos^4$ of half the angular field". It is independent of the design and degree of correction of the lens.

3. Distortion
Here again the image height l′ 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 (pin-cushion distortion); a negative V indicates barrel distortion.

Subject to technical amendment