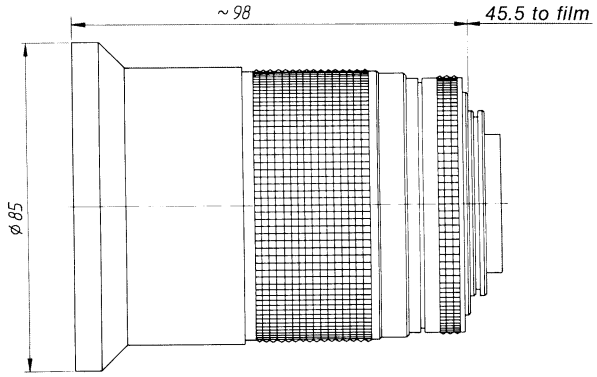
Vario-**Sonnar**® T* f/3.3-4.0 28 - 85 mm



CONTAX®/YASHICA® mount

The 28-85 mm Vario-**Sonnar**® T* f/3.3 - 4.0 lens from Carl Zeiss ofters excellent image quality over its entire focal length range - so good in fact that it can be readily compared to lenses with fixed focal lengths. Even at the minimum focusing range of 0.6 m, good results are still obtained.

Its sturdy mechanical design guarantees extreme reliability in use. Like all Zeiss Vario® lenses for the **Contax**® SLR Camera System, this is a Zeiss-patented, one-touch zoom lens, i.e. the same ring is used for zooming and focusing.
The large focal range of the 28 - 85 mm Vario **Sonnar**® T* f/3.3 - 4.0 lens from Carl Zeiss makes it ideal for universal application, e.g. for architectural, landscape and portrait photography.

Cat. No. of lens:	**10 47 38**
Number of elements:	16
Number of groups:	13
Max. aperture*:	f/3.3-4.0
Focal length*:	29.0-82.4 mm
Negative format:	24 x 36 mm
Angular field 2w*:	29º-75º
Mount:	focusing mount with bayonet; coupling system for automatic diaphragm function; TTL metering either at full aperture or in stopped-down position; Aperture priority/Shutter priority and automatic programs (Multi-Mode Operation)
Aperture scale:	3.3 - 5.6 - 8 - 11 - 16 - 22
Scale of focal lengths:	28 - 35 - 40 - 50 - 60 - 85
Filter connection:	filter thread M 82 x 0.75
Focusing range:	∞ to 0.6 m
Weight:	approx. 735 g

Entrance pupil*:	
Position:	a) 39.7 mm behind first lens vertex
	b) 40.4 mm behind first lens vertex
Diameter:	a) 8.5 mm
	b) 20.4 mm
Exit pupil*:	
Position:	a) 68.1 mm in front of last lens vertex
	b) 64.4 mm in front of last lens vertex
Diameter:	a) 32.5 mm
	b) 26.3 mm
Position of principal planes*:	
H:	a) 61.0 mm behind first lens vertex
	b) 58.6 mm behind first lens vertex
H':	a) 12.4 mm behind last lens vertex
	b) 41.1 mm in front of last lens vertex
Back focal distance:	41.4 mm
Distance between first and last lens vertex*:	a) 143.3 mm
	b) 99.7 mm

a) f = 28 mm, b) f = 85 mm, * at ∞

ZEISS

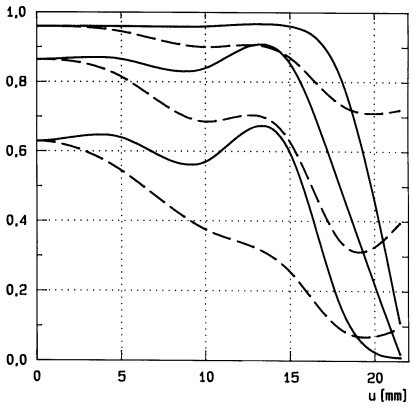
Performance data:
Vario-**Sonnar**® T* f/3.3-4.0 28 - 85 mm
Cat. No. 10 47 38

1. MTF Diagrams

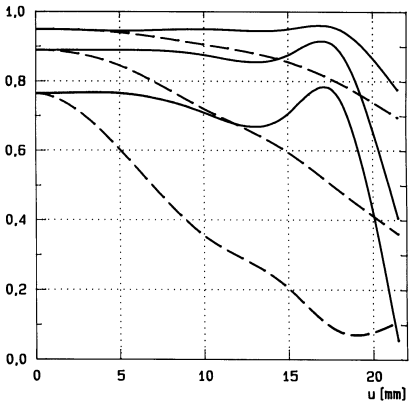
The image height u - calculated from the image center - is entered in mm on the horizontal axis of the graph. The modulation transfer T (MTF = Modulation Transfer Factor) is entered on the vertical axis. Parameters of the graph are the spatial frequencies R in cycles (line pairs) per mm given at the 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.

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

T f-number k = 3.3; f = 28 mm



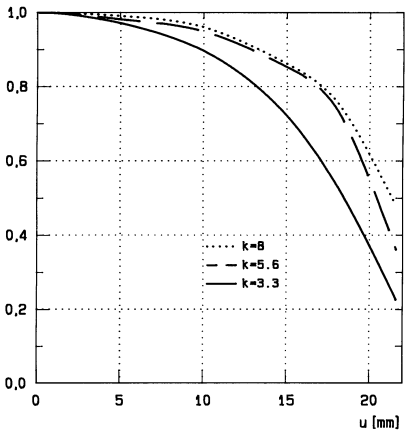
T f-number k = 8; f = 28 mm



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.

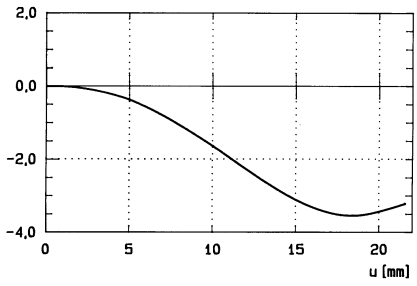
E Relative illuminance; f = 28 mm



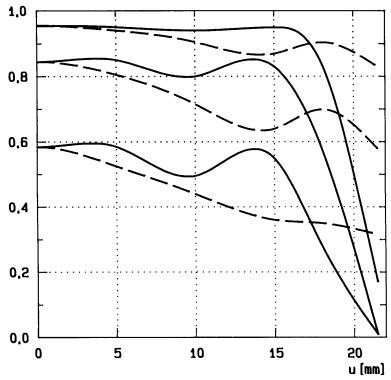
3. Distortion

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.

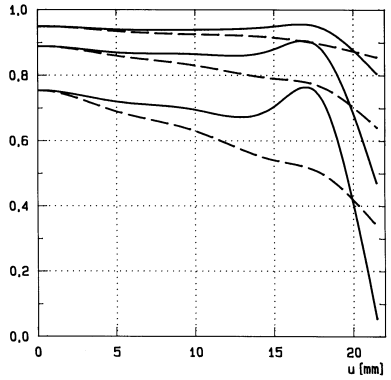
V Distortion in % of image height u; f = 28 mm



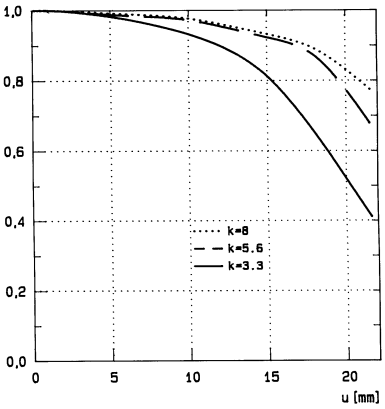
T f-number k = 3.3; f = 50 mm



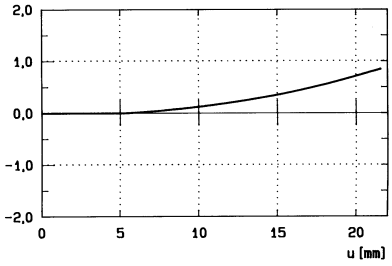
T f-number k = 8; f = 50 mm



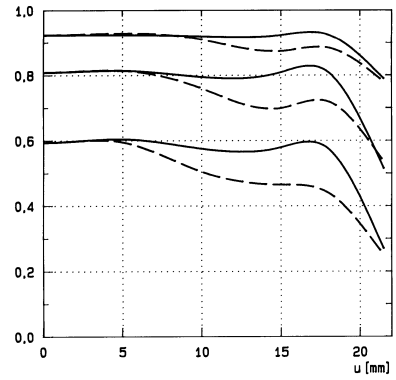
E Relative illuminance; f = 50 mm



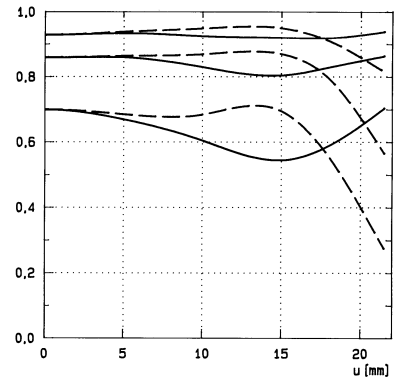
V Distortion in % of image height u; f = 50 mm



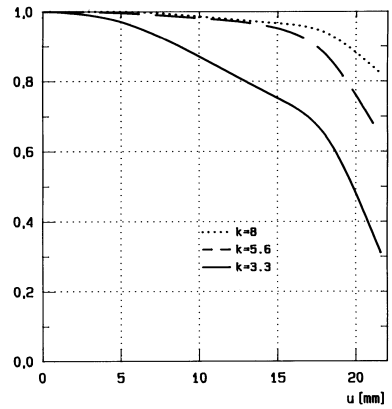
T f-number k = 3.3; f = 85 mm



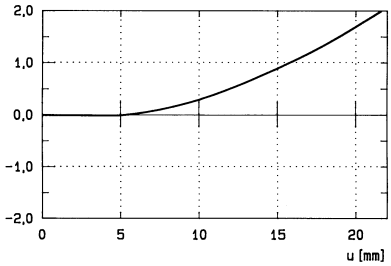
T f-number k = 8; f = 85 mm



E Relative illuminance; f = 85 mm



V Distortion in % of image height u; f = 85 mm



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