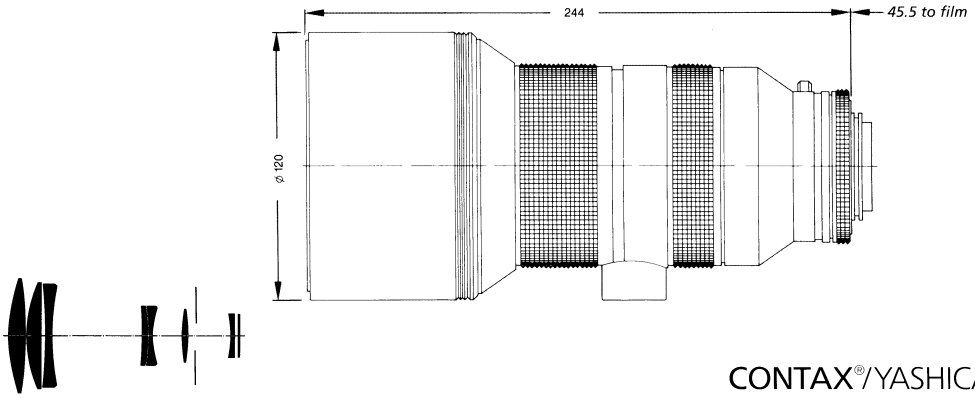
Tele-Apotessar® T* f/2.8 - 300 mm



CONTAX®/YASHICA® mount

In general, the correction of longitudinal chromatic aberration in camera lenses is confined to the superimposition of the images for two colours of light. The aberrations occurring with all other colours produce the "secondary spectrum" which increases in proportion to the focal length. The secondary spectrum and the lateral chromatic aberration (appearing in the image field as colour fringes on contrasty edges) limit the optical performance of a telephoto lens made up of classical glass. Apart from crystal materials, the modern fluophosphate types of glass also offer the possibility of drastically reducing residual achromatism.

In the 300 mm **Tele-Apotessar**® T* f/2.8 lens this glass type, with its extreme optical properties, has been used for two elements.

The result is superior image quality. The pictures are extremely sharp and brilliant.
The name Apotessar indicates the excellent correction of chromatic aberration.

For focusing the **Tele-Apotessar**® T* lens, a group in the lens is moved (internal focusing). The advantages of this principle over the usual shift of the total system are easy to see: constant length of the lens and virtually constant location of the centre of gravity during focusing; improved ease of motion and operation of the focusing ring; the focusing helicoid has to move only a light group and hence does not have to withstand the pressure of the weight of the entire lens.
Another point to note is that the image quality is still very good at minimum focusing distance.

Cat. No. of lens:	**10 45 33**
Number of elements:	7, (+ filter)
Number of groups:	6, (+ filter)
Max. aperture*:	f/2.8
Focal length*:	300.6 mm
Negative size:	24 x 36 mm
Angular field 2w*:	8.2º diagonal
Lens mount:	focusing mount with bayonet; TTL metering either at full aperture or in stopped-down position. Built-in lens hood.
Aperture scale:	2.8 - 4 - 5.6 - 8 - 11 - 16 - 22
Filter connection:	insertable filter
Weight:	approx. 2,730 g

Focusing range:	∞ to 3.5 m internal focusing
Entrance pupil*:	
Position:	446.7 mm behind the first lens vertex
Diameter:	102.2 mm
Exit pupil*:	
Position:	36.3 mm in front of the last lens vertex
Diameter:	37.7 mm
Position of principal planes*:	
H:	121.1 mm in front of the first lens vertex
H':	12.7 mm in front of the first lens vertex
Back focal distance*:	67.7 mm
Distance between first and last lens vertex:	220.1 mm

* at ∞

ZEISS

Performance data:

Tele-Apotessar® T* f/2.8 - 300 mm

Cat. No. 10 45 33

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.

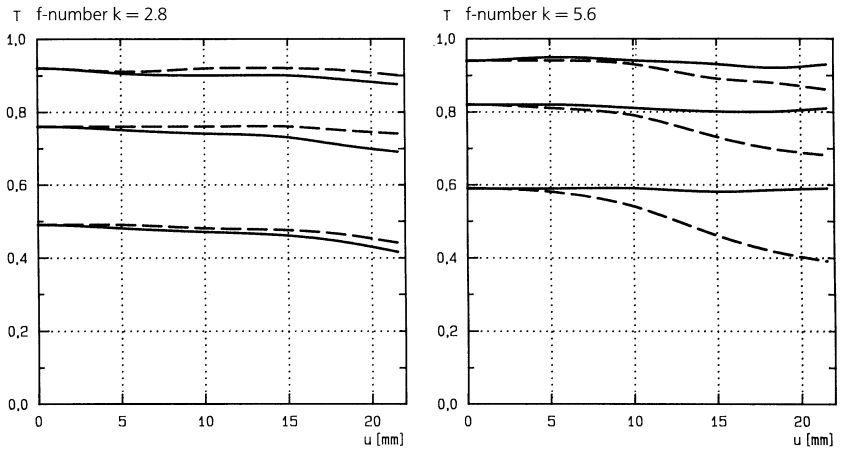
2. Relative illuminance

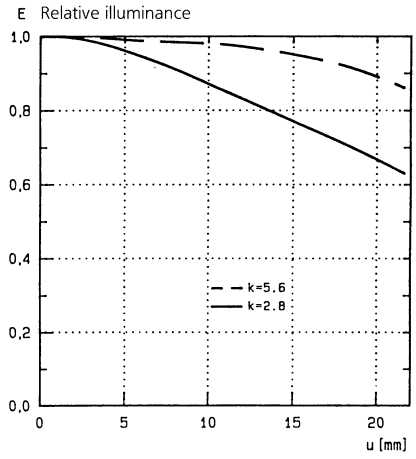
In this diagram the horizontal axis gives the image height u in mm and the vertical axis the relative illuminance E, both for full aperture and a moderately stopped-down lens. The values for E are determined taking into account vignetting and natural light decrease.

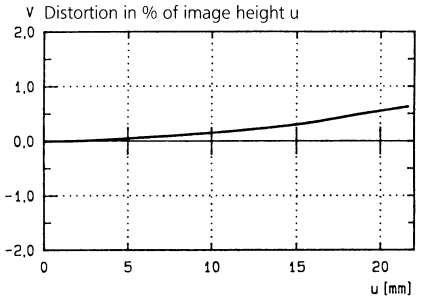
3. Distortion

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.

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





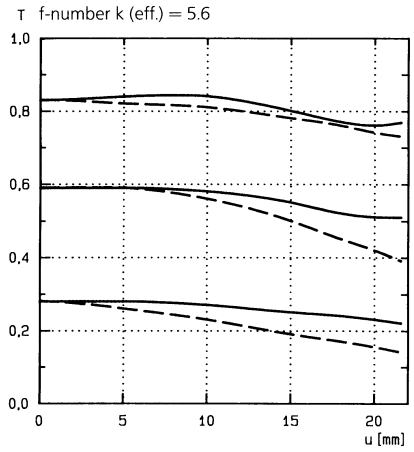


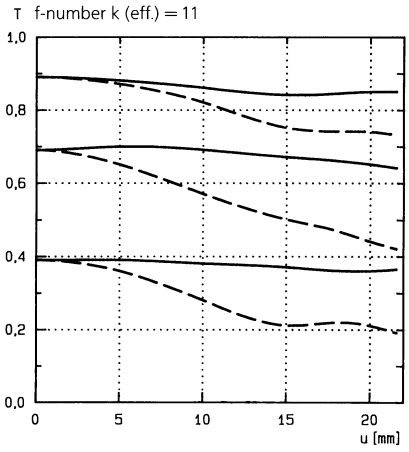
Performance data:
Tele-Apotessar® T* f/2.8 - 300 mm
with Mutar® II, 2x, T* converter

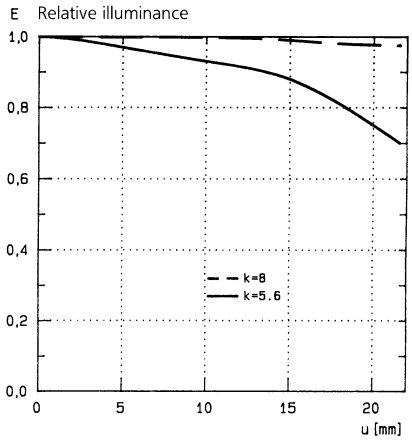
Cat. No. of lens + converter:	**10 45 33 + 10 45 30**	Focusing range:	∞ to 3.5 m
Number of elements:	7 + 7 (+ filter)	Entrance pupil*:	
Number of groups:	6 + 4 (+ filter)	Position:	446.7 mm behind first lens vertex
Max. aperture*:	f/5.6	Diameter:	107.1 mm
Focal length*:	600.0 mm	Exit pupil*:	
Negative format:	24 x 36 mm	Position:	73.1 mm in front of last lens vertex
Angular field 2w*:	4º diagonal	Diameter:	21.6 mm
Lens mount:	focusing mount with bayonet. TTL metering either at full aperture or in stopped-down position. Built-in lens hood	Position of principal planes*: H*:	1942 mm in front of first lens vertex
		H'*:	261.3 mm in front of first lens vertex
		Back focal distance*:	47.9 mm
Filter connection:	insertable filter	Distance between first and last lens vertex:	290.8 mm
Weight:	approx. 2,730 g + approx. 300 g		

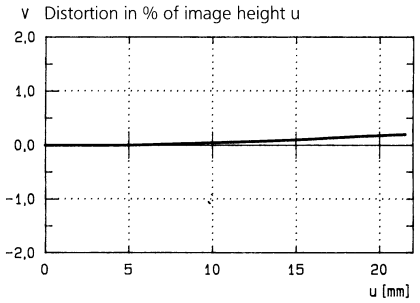
* at ∞

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









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