



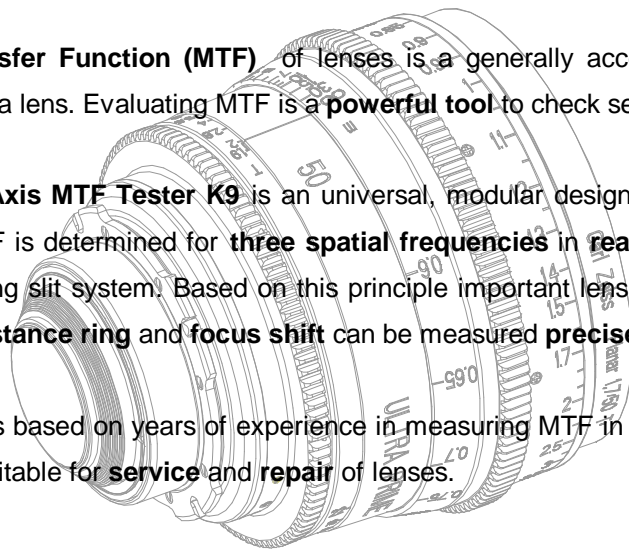
On - Axis MTF Tester K9



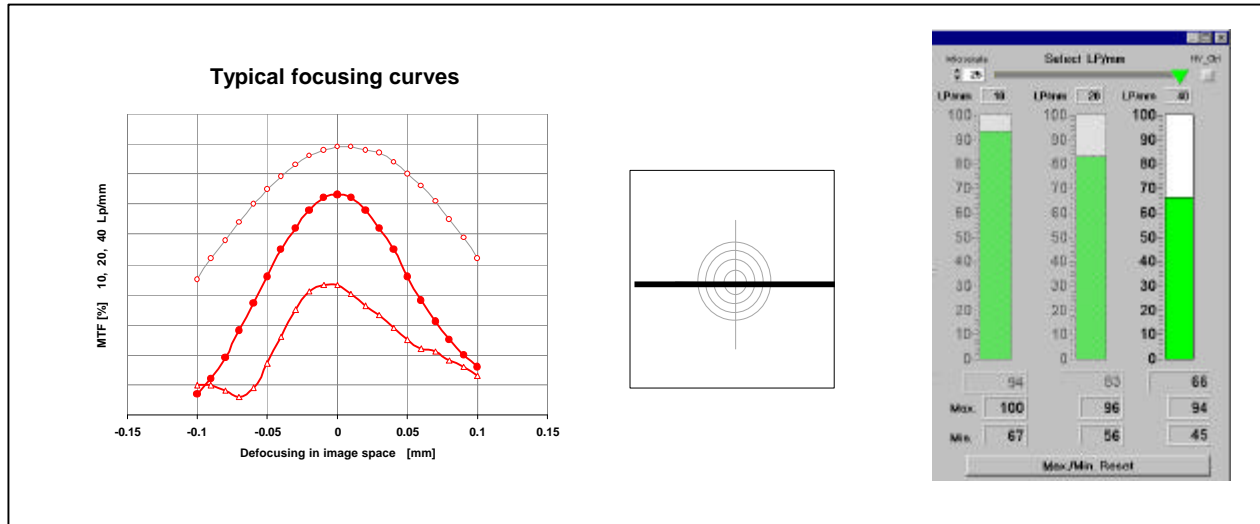
The **Modulation Transfer Function (MTF)** of lenses is a generally accepted criterion to define the optical performance of a lens. Evaluating MTF is a **powerful tool** to check several **lens parameters**.

The Carl Zeiss **On – Axis MTF Tester K9** is an universal, modular designed equipment for measuring MTF on axis. The MTF is determined for **three spatial frequencies** in **real - time**, applying line image analysis with a scanning slit system. Based on this principle important lens parameters as **flange focal length**, accuracy of **distance ring** and **focus shift** can be measured **precisely**.

The design of the K9 is based on years of experience in measuring MTF in **laboratory** and **production**. The K9 is especially suitable for **service** and **repair** of lenses.



Scope of supply and features



- Precise calibration of nominal flange focal length with gauge
- Robust and strong PL 54 lens mount ensures tight fixing of lens
- All measurements performed under horizontal operating conditions
- Simple change between infinity configuration and close distance configuration
- Collimator infinity position precisely defined by click stop
- Easy locating of slit image by moving the analyser in three axes and using pinhole object
- Exact focusing by watching MTF – bars and min /max display on PC - monitor
- Display of three spatial frequencies (10Lp/mm, 20 Lp/mm, 40 Lp /mm) in real - time
- Other spatial frequencies possible
- Autofocus option on request
- Check of actual flange focal length
- Test of lens MTF - performance on axis at infinity and close distance
- Simple measurement of focus shift by comparing focus positions at full aperture and stopped down
- Object stage with revolver for up to three different objects
- Measurement of axial chromatic aberration with colour filter revolver
- Adjustable click stops for up to three closer distances
- Precise setting of any object distance with digital length measurement system
- Check of lens distance ring in meter and feet
- Extensive accessories, also for HD – lenses
- Maintenance and calibration service by Carl Zeiss



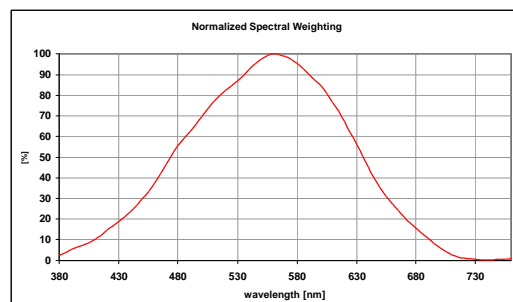
Technical Data and Main Assemblies

- **Analyser Unit**

Manually controlled	Moveable in three axes
Range focus axis	± 5 mm
Resolution / accuracy focus axis	0.001 mm / 0.01 mm
Range vertical / horizontal axis	± 2 mm
Standard microscope lens	25x / 0.65 (others on request)
MTF- measurement	Slit – scanner with motor drive, 1500 U/min Digital Fourier Analysis for three spatial frequencies. with a ratio of 1 : 2 : 4
Resolution / repeatability	1% / $\leq 5\%$ at 20 Lp/mm
Light sensor	Photomultiplier Hamamatsu R446
Camera	B/W CCD- Camera

- **Spectral weighting**

See diagram



- **Calibration**

MTF calibration	Gauge with synthetic slit image
Flange focal length	Gauge with nominal value

- **Lens Mount**

Standard	PL 54
Max. length of lens under test	350 mm
Max. weight	10 kg

- **Collimator**

Lens type	Achromat
Focal length / diameter	1200 mm, \varnothing 80 mm (others on request)



Technical Data and Main Assemblies cont.

• Object stage

Distance Measurement	Digital Length Measurement system
Resolution / Accuracy	0.01 mm / 0.10 mm
Distance range	∞ with collimator in optical path 0.30 m to 2.8 m with collimator outside of optical path
Object revolver	horizontal slit image (30 μ m width), pinhole image free position; manually operated Up to three images attachable different slit width on request

• Illumination

Light source	Halogenlamp, 12 V / 100 W, 3200 K
Standard Filter	BG 38

Dimensions

Dimensions [cm] (w x d x h)	350 x 60 x 60
Weight	150 kg

Environment conditions

Temperature range	18° C to 23° C
Relative humidity	30 to 76%

Options

CCD – color camera
Collimator 1200 mm, \varnothing 150 mm
Filter revolver (up to four filter positions)
Customized filters
Beam splitter dummy for HD - lenses
Customized lens mounts
Autofocus (on request)
Gauge with nominal flange focal length

Power supply

240 V AC / 50 Hz, 600 VA

Subject to change
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For more information, please contact:



Carl Zeiss
Camera Lens Division
73446 Oberkochen
Germany

Phone: (+49)-7364-20-6175
FAX: (+49)-7364-20-3466
e-mail: photo@zeiss.de
<http://www.zeiss.de/photo>