

vicotor® TO78/13.0-600-V-eLD

Short description: Telecentric measuring lens, C-mount, sensor opt. 1", aperture F8-F22,
extremely LD
Order number: 2-05-631

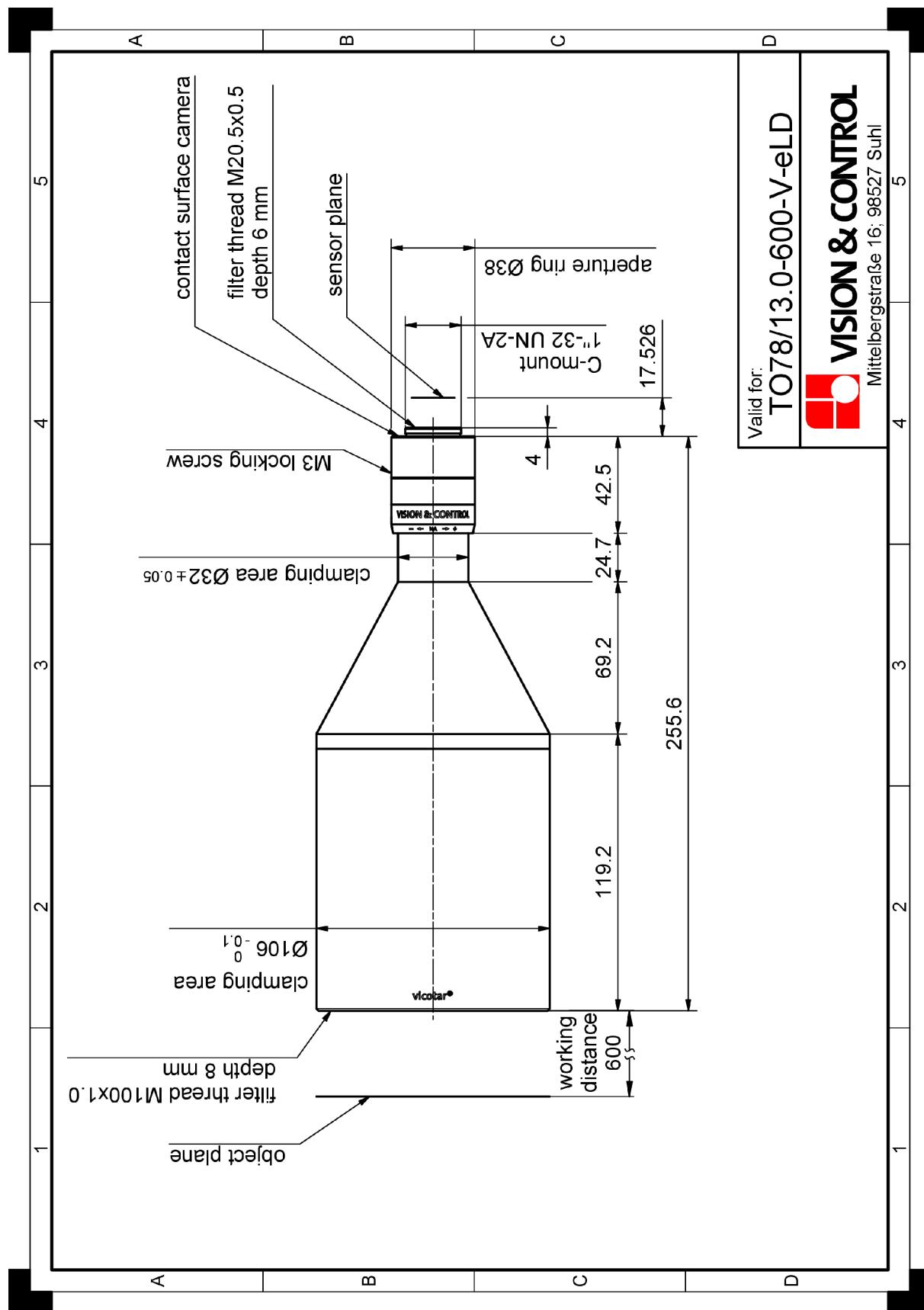
1 CHARACTERISTICS

- telecentric measuring objective with object-sided telecentric beam path
- extremely long working distance
- designed for monochromatic applications
- very well suited for blue LEDs including "deep blue" LEDs
- high resolution, low telecentric error
- adjustable aperture, lockable
- robust industrial design

2 TECHNICAL DATA

| | |
|--|--|
| Image scale: | 0.165 ± 2% |
| Depth image scale ($\Delta z' / \Delta z$) | 0.027 |
| Spectral range: | 400 nm – 950 nm (monochromatic) |
| Working distance: | 600 mm ± 2 mm |
| Camera distance (object-camera flange): | 856 mm |
| Imaging length: | 873 mm |
| Object field diagonal (max.): | 78 mm |
| Sensor format (optimal): | 1" (for parts up to 55 mm diameter) |
| Image field diagonal (max.): | 13 mm |
| Suitable for camera resolution: | 13.7 MPixel |
| Recommended pixel size: | 3 µm |
| Minimal object-side resolvable structure detail: | 30 µm (@ 470 nm, F8) |
| Aperture: | F8 – F22 |
| Depth of field: | 44 mm (F11, 525 nm, MTF = 20 % @ 20 LP/mm) |
| Lens length: | 256 mm |
| Lens diameter (max.): | 106 mm |
| Lens mount: | C-Mount |
| Filter thread, object-side: | M100 x 1 |
| Filter thread, camera-side: | M20.5 x 0.5 |
| Weight: | 1600 g |
| Usable object field with | |
| • 1" sensor (12.8 x 9.6 mm ²): | 63.1 mm x 47.3 mm |
| • 2/3" sensor (8.8 x 6.6 mm ²): | 53.3 mm x 40.0 mm |
| • 1/1.8" sensor (7.1 x 5.4 mm ²): | 43.0 mm x 32.7 mm |

3 CUSTOMER DRAWING



4 EXTENSION RINGS

Extension rings mainly shorten the working distance. The magnification also changes, but only very slightly.

The working distance is reduced by approximately the thickness of the extension ring divided by the depth magnification.

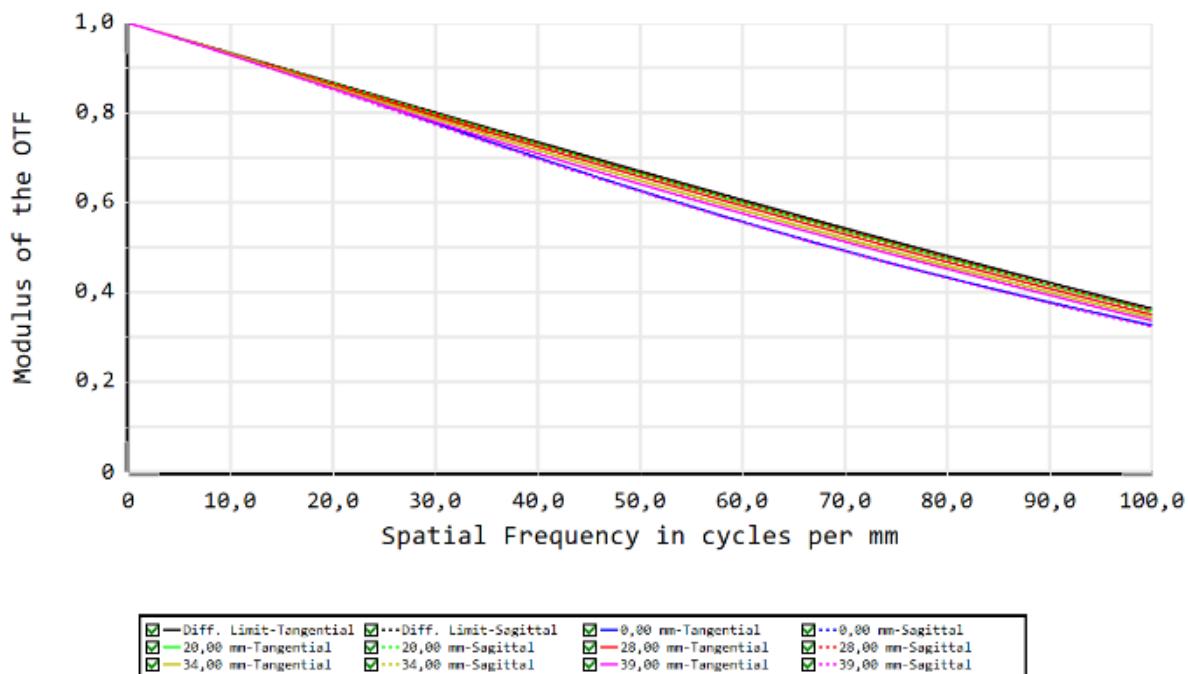
Extension rings can reduce the ideal imaging performance specified in the data sheet.

| Parameter | Value |
|---|-------|
| Working distance | 600 |
| Working distance with extension ring 0.1 mm | 596 |
| Working distance with extension ring 0.2 mm | 593 |
| Working distance with extension ring 0.5 mm | 582 |
| Working distance with extension ring 1 mm | 563 |

5 OPTICAL CHARACTERISTICS (DESIGN DATA)

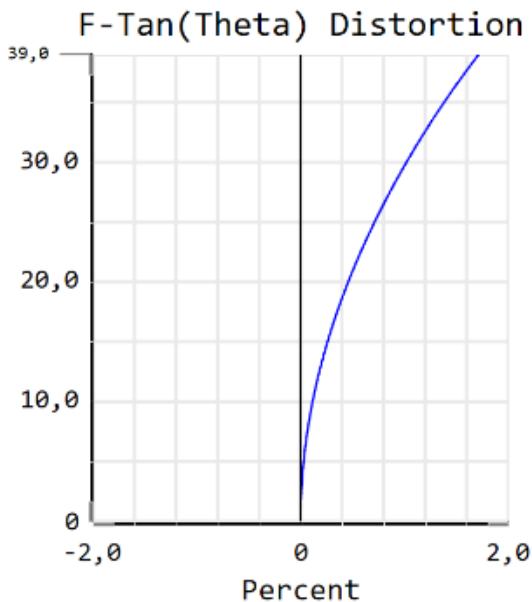
5.1 MONOCHROMATIC MTF IN THE IMAGE SPACE DEPENDING ON THE OBJECT FIELD HEIGHT

Wavelength: 525 nm



F-number: F10

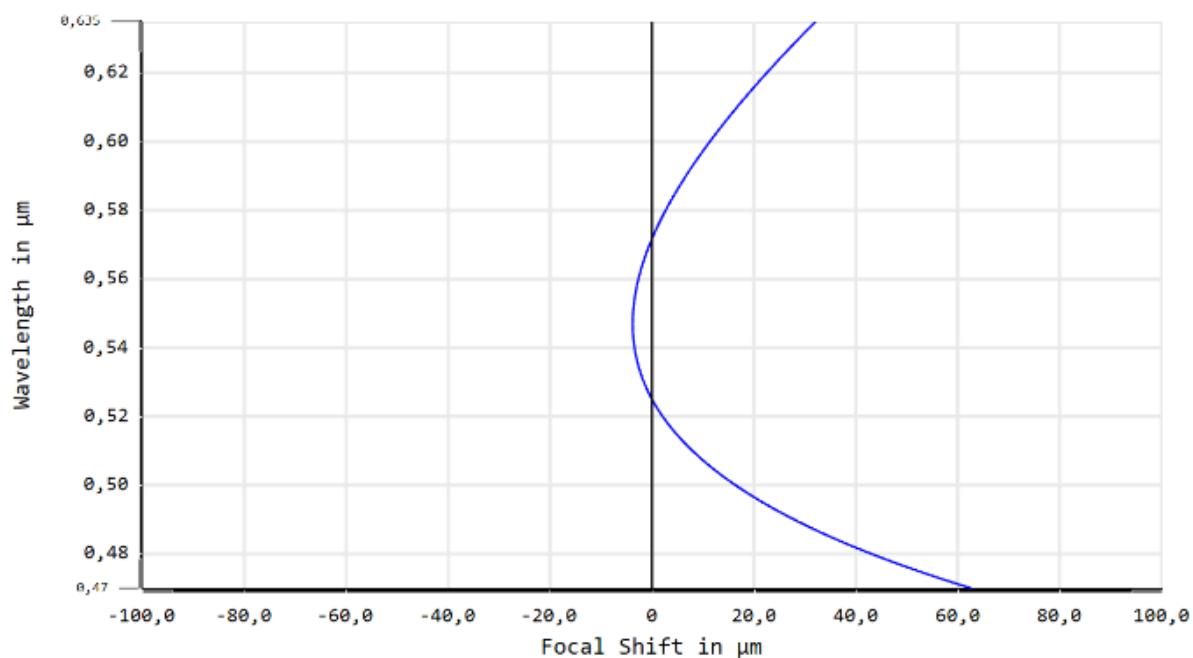
5.2 DISTORTION



0,5250

Distortion

5.3 FOCAL SHIFT



Chromatic Focal Shift

Focal shift