
vicotar® 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

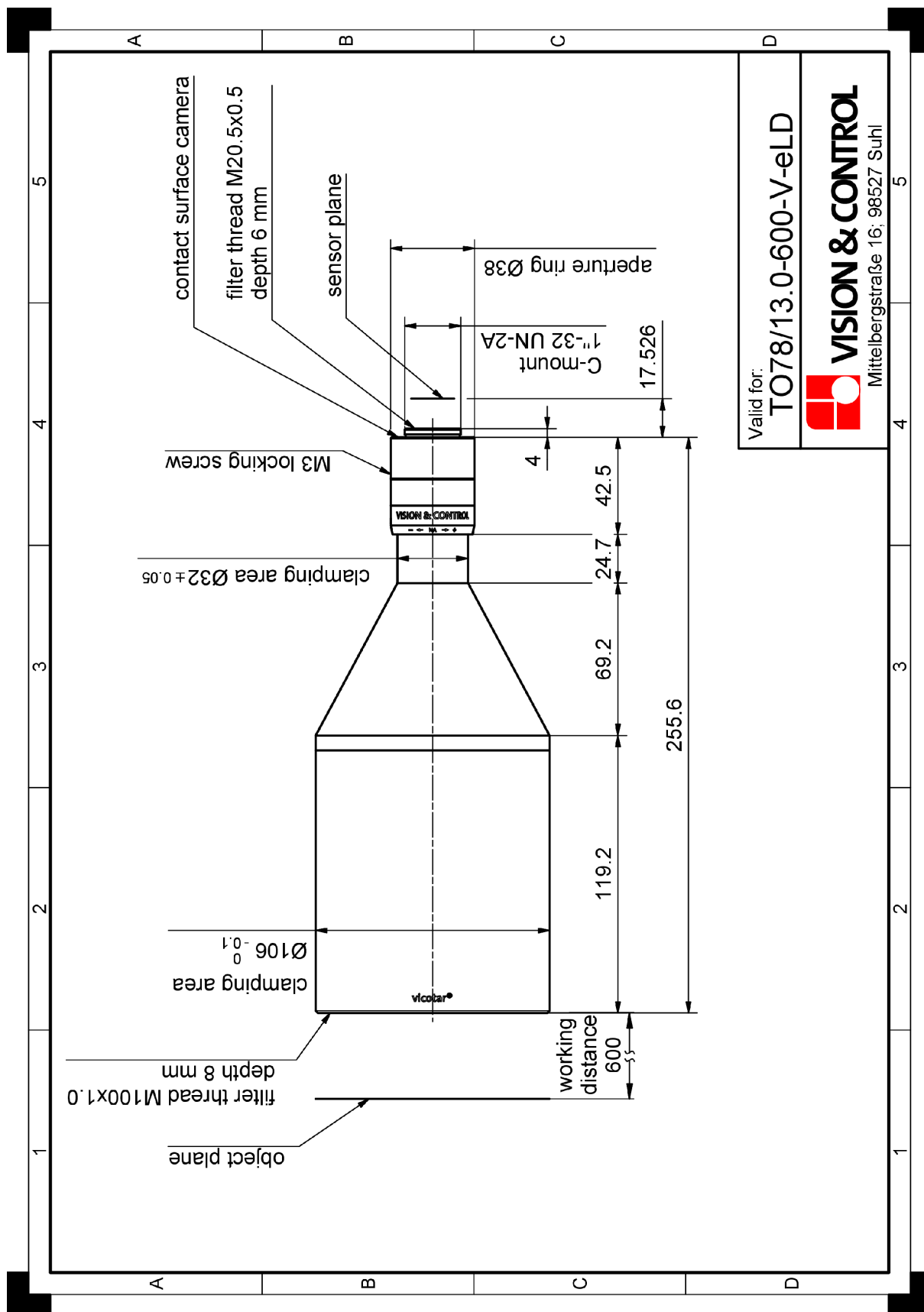
1 CHARACTERISTICS

- 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
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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 mm²):	63.1 mm x 47.3 mm
• 2/3" sensor (8.8 x 6.6 mm²):	53.3 mm x 40.0 mm
• 1/1.8" sensor (7.1 x 5.4 mm²):	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.

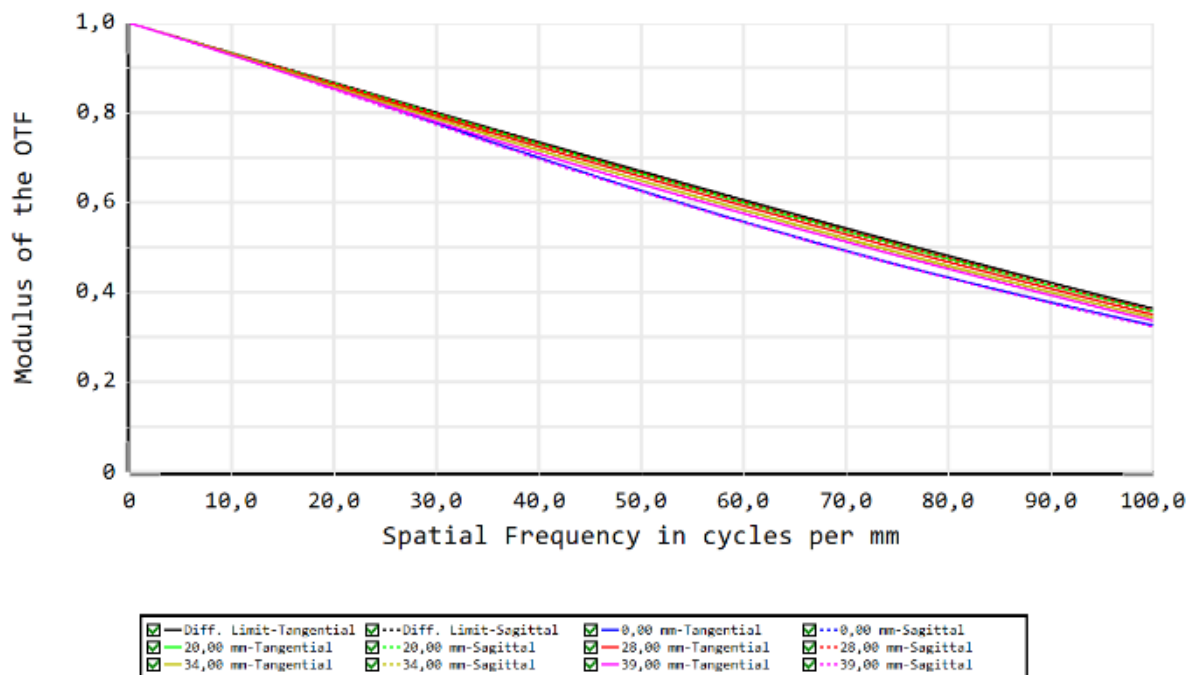
Extension rings can reduce the ideal imaging performance specified in the data sheet.

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)

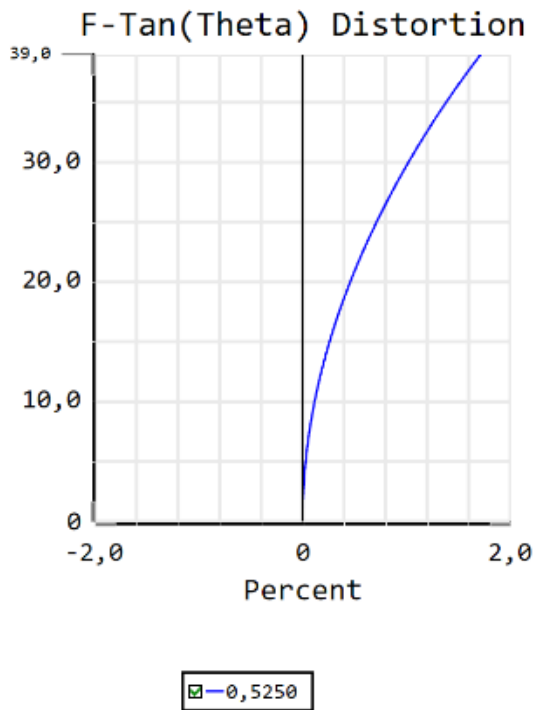
5.1 MONOCHROMATIC MTF IN THE IMAGE SPACE DEPENDING ON THE OBJECT FIELD HEIGHT

Wavelength: 525 nm



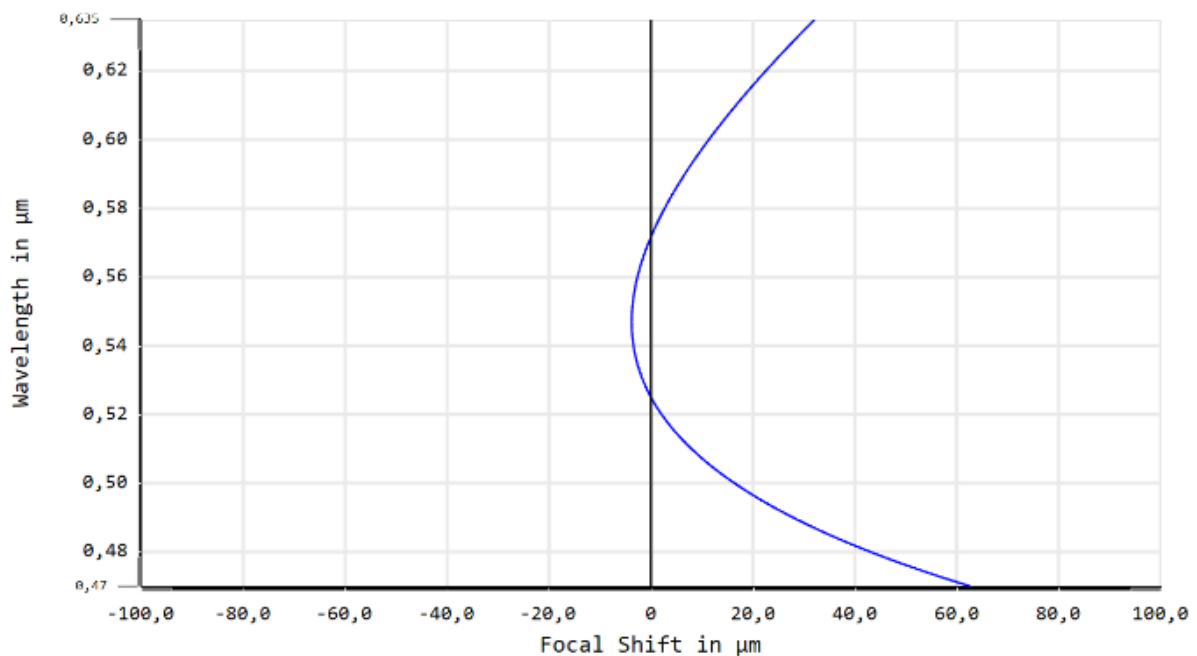
F-number: F10

5.2 DISTORTION



Distortion

5.3 FOCAL SHIFT



Chromatic Focal Shift

Focal shift