

This bilateral telecentric 2/3" C-Mount lens for 0.2x magnification is a precise instrument for accurate dimensional measurement and high resolution micro inspection. The special telecentric design is the key for easy inspection of holes and tubes. Telecentricity not only on the object but also on the sensor side keeps the image position even with slight defocussing or sensor misalignment.

## Key features

- Bilateral telecentric design
- For sensor size up to 2/3"
- Magnification 0.2x
- 400 - 1000 nm AR coating

## Applications

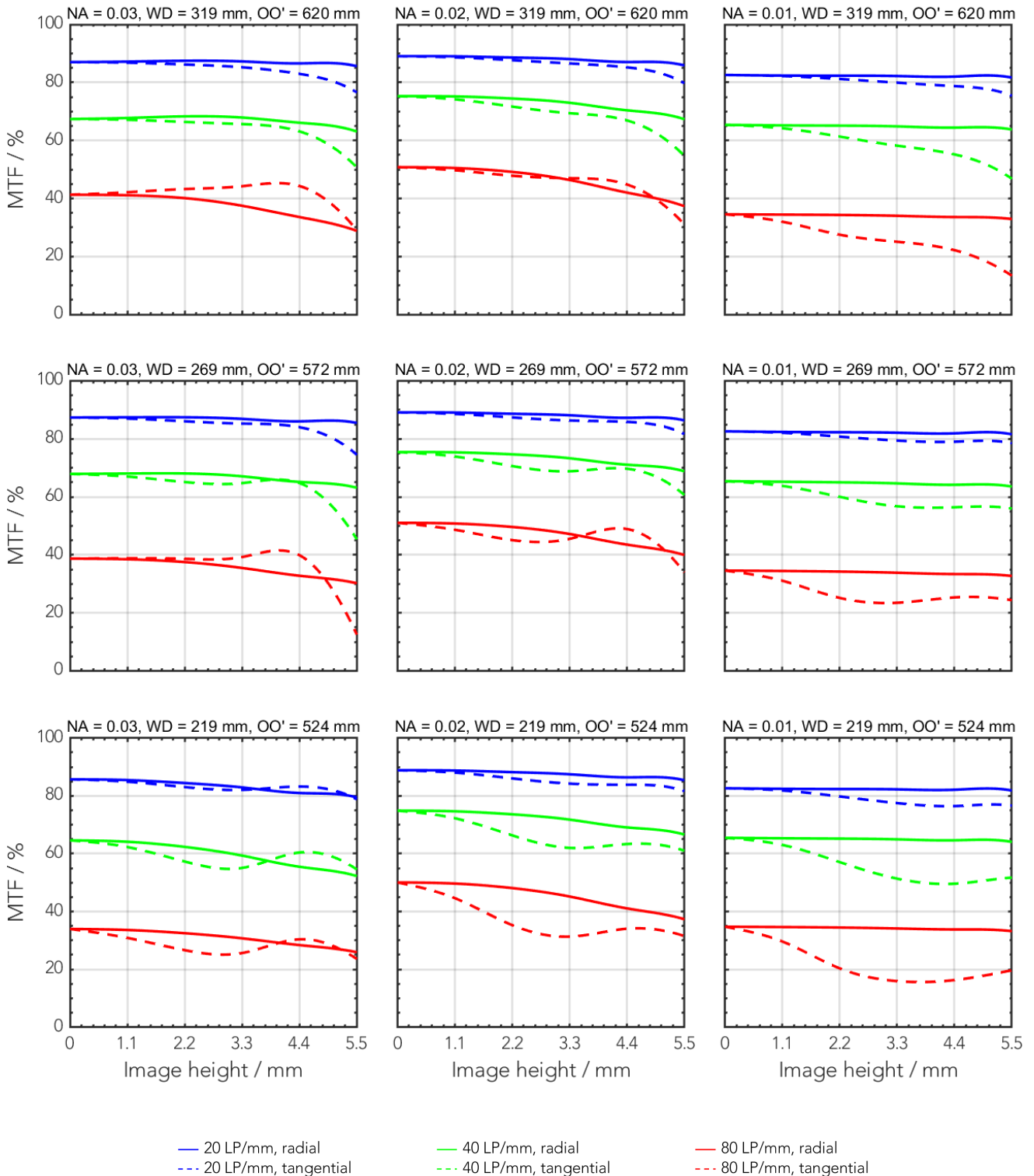
- High precision measurement
- Tube inspection
- Jewel inspection
- Micro defect detection

## Technical specifications

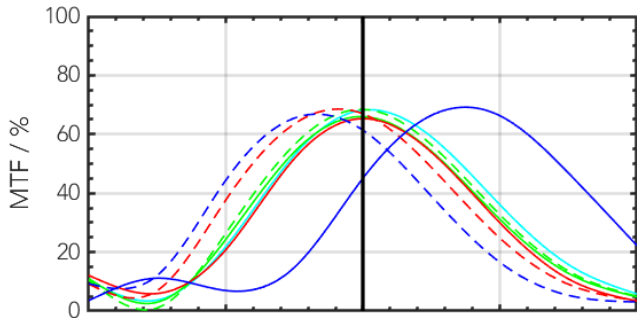
Type [standard]	C
ID [standard]	35854
Interface	C-Mount
Focal length [mm]	$\infty$
Image space numerical aperture range	0.13 ... 0.04
Numerical aperture [object   image]	0.03   0.13
Max. sensor size [mm]	11
Max. angle of view [°]	0 (telecentric)
Rec. magnification	-0.20
Rec. working distance range [mm]	269 (194 ... 344)
Max. mechanical focus travel [mm]	+/- 3
Filter thread [mm]	M77 x 0.75
Storage temperature [°C]	-25 ... +70
Net. weight [standard] [g]	2600
Additional info	telecentric object and image space
f'eff [mm]	10811
SF [mm]	53773
S'F' [mm]	-2120
HH' [mm]	-77256
$\beta'$ P	7.71
SEP [mm]	55175
S'AP [mm]	-85482
$\Sigma d$ [mm]	258.55

## MTF charts

Spectrum name	VIS					
Wavelengths [nm]	425	475	525	575	625	675
Rel. weights [%]	8	16	23	22	19	13

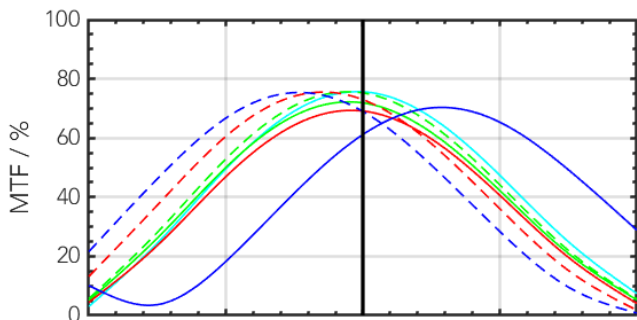


## MTF through focus



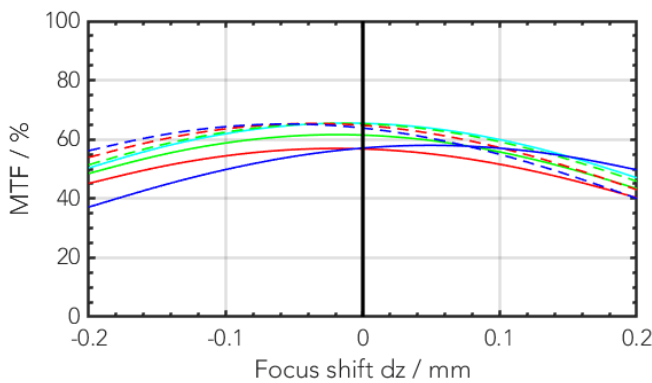
Modulus of MTF @ 40 LP/mm, WD = 269 mm, NA = 0.03

- 0.00 mm - radial
- - 0.00 mm - tangential
- 1.83 mm - radial
- - 1.83 mm - tangential
- 3.67 mm - radial
- - 3.67 mm - tangential
- 5.50 mm - radial
- - 5.50 mm - tangential



Modulus of MTF @ 40 LP/mm, WD = 269 mm, NA = 0.02

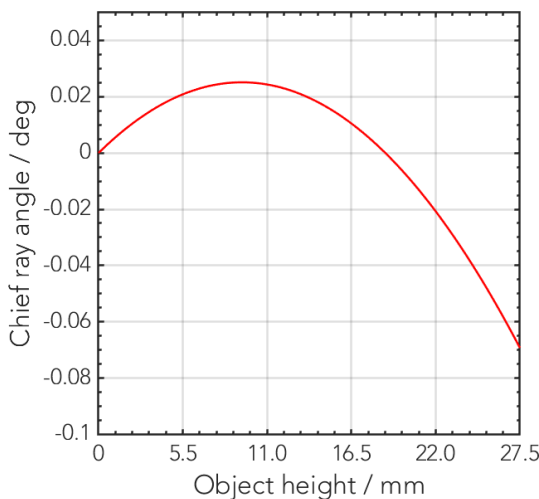
- 0.00 mm - radial
- - 0.00 mm - tangential
- 1.83 mm - radial
- - 1.83 mm - tangential
- 3.67 mm - radial
- - 3.67 mm - tangential
- 5.50 mm - radial
- - 5.50 mm - tangential



Modulus of MTF @ 40 LP/mm, WD = 269 mm, NA = 0.01

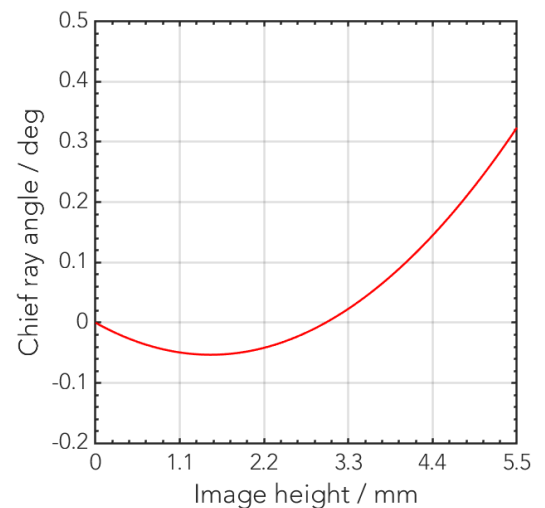
- 0.00 mm - radial
- - 0.00 mm - tangential
- 1.83 mm - radial
- - 1.83 mm - tangential
- 3.67 mm - radial
- - 3.67 mm - tangential
- 5.50 mm - radial
- - 5.50 mm - tangential

## Telecentricity vs. object height

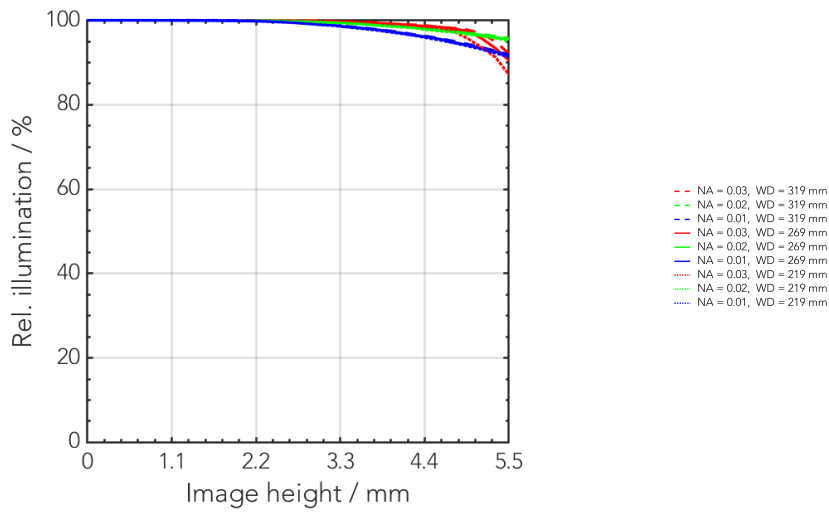


- WD = 319 mm
- WD = 269 mm
- WD = 219 mm

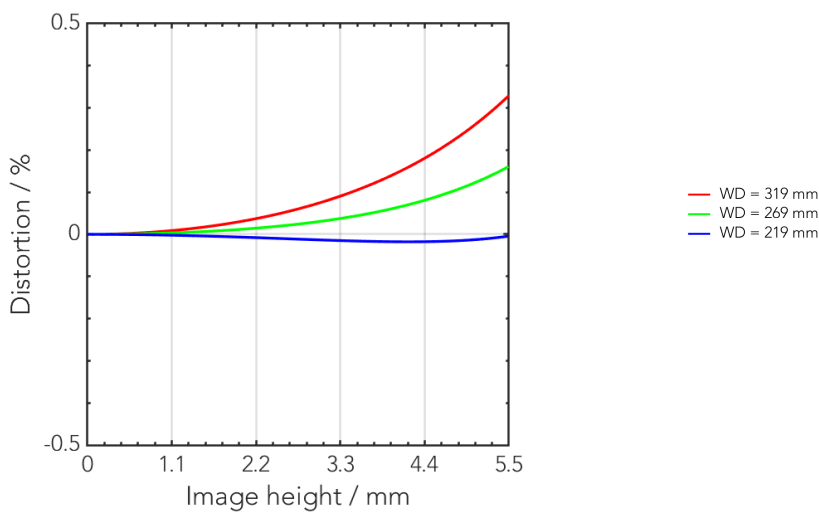
## Acceptance angle vs. image height



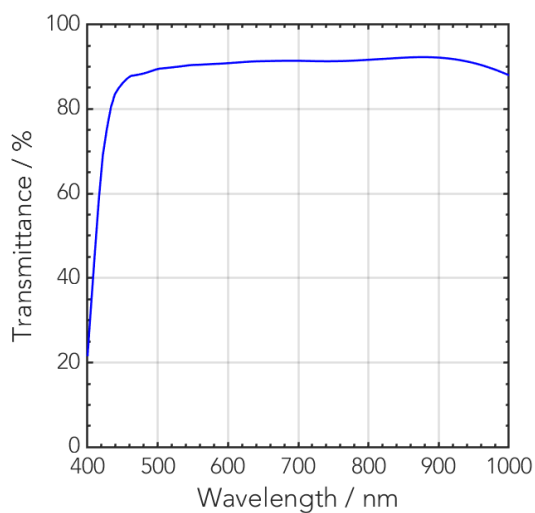
## Rel. illumination vs. image height



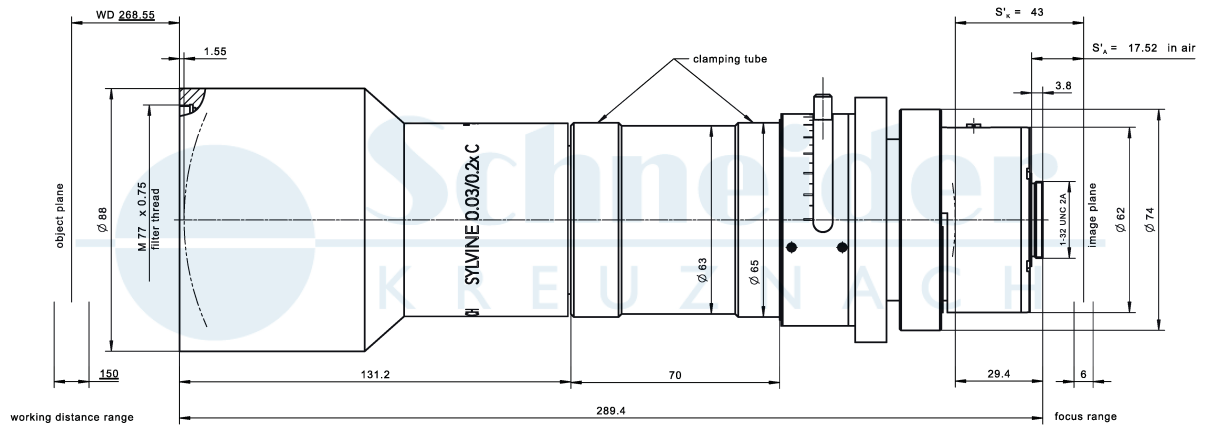
## Distortion vs. image height



## Transmittance vs. wavelength



## Technical drawings



Accessories	Mount	Eff. length	ID
Adapter	CS-Mount	5 mm	25081
	C-Mount / M42x1	5.5 mm	1075817
Extension tube	C-Mount / C-Mount	5 mm	39316
	C-Mount / C-Mount	8 mm	39315
	C-Mount / C-Mount	10 mm	39312
Telecentric Clamp			36378

Annotation	
Focal length	Nominal focal length
F/# range	Image space F-number range for infinity focus position
Numerical aperture	Maximum real numerical aperture (depending on recommended magnification range either for infinity or respective fixed magnification)
Max. sensor size	Image circle diameter
Max. angle of view	Angle of view associated with maximum sensor size (depending on recommended magnification range either for infinity or respective fixed magnification)
Rec. magnification range	Magnification range as recommended by Schneider-Kreuznach
Rec. working distance range	Working distance, i.e. distance between object and first mechanical element, associated with recommended magnification range
Max. mechanical focus travel	Maximum possible movement of the lens from infinity position (depending on recommended magnification range either for infinity or respective fixed magnification)
Net weight	weight of unpacked lens without lens cap
$f'_{\text{eff}}$	Effective focal length
SF	Distance between vertex of first lens surface and object space focal point
S'F'	Distance between vertex of last lens surface and image space focal point (back focal distance at infinity)
HH'	Distance between principal planes
$\beta'P$	Pupil magnification (= exit pupil diameter / entrance pupil diameter)
SEP	Distance between vertex of first lens surface and entrance pupil
S'AP	Distance between vertex of last lens surface and exit pupil
$\Sigma d$	Distance between vertices of first and last lens surface
s'A	Flange focal distance (in air) for infinite object distance (depending on recommended magnification range either for infinity or respective fixed magnification)
$\beta'$	Magnification (= image size / object size), negative value because image is inverted
OO'	Distance between object and image

Unless otherwise stated all dimensions in this data sheet are in mm.

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