

This high-resolution 0.7x lens is designed and manufactured to be used with 16k line scan sensor with 5 μm pixel pitch. It aims to detect fine and various defects on the display panel and IC-substrate. The V-mount interface makes it easy to install and rotate into the desired azimuth position to get the best performance along the sensor.

KEY FEATURES

- Designed for 16k / 5 μm line scan sensors
- Optimized for 0.7x magnification
- Diffraction limited design
- With beamsplitter for coaxial illumination

APPLICATIONS

- FPD inspection
- PCB inspection
- Micro defect detection
- AOI (Automated Optical Inspection)

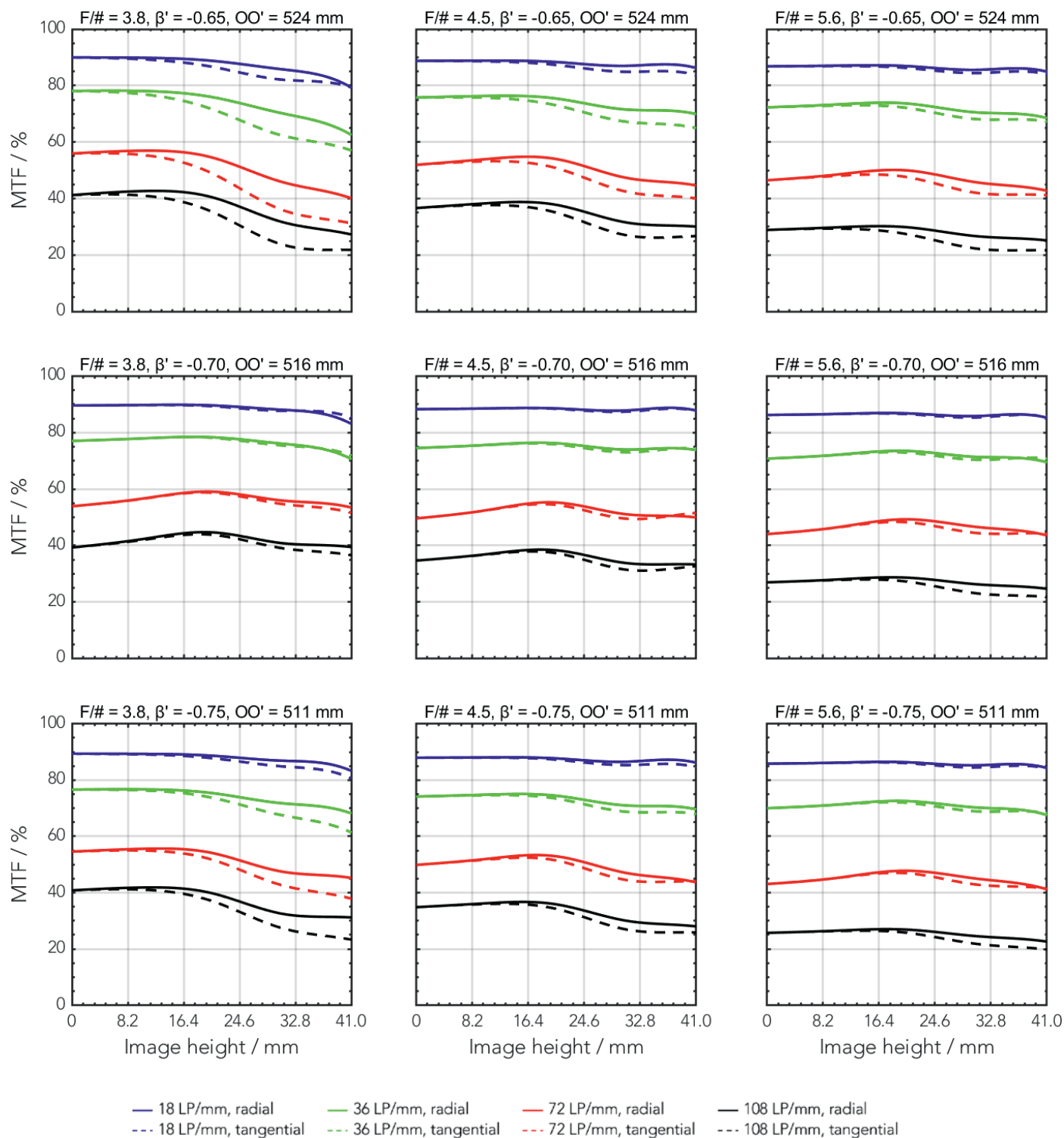


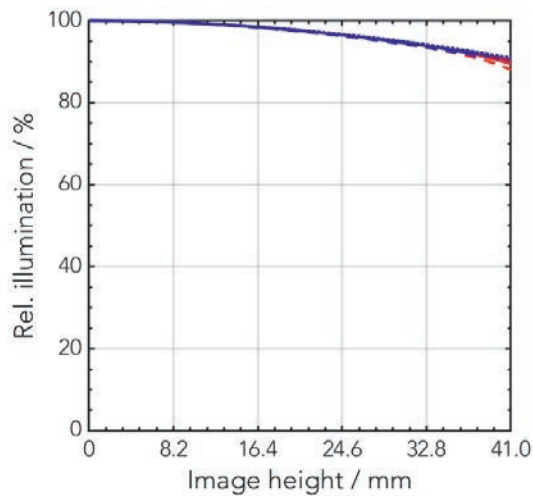
TECHNICAL SPECIFICATIONS

ID [with beamsplitter]	1102769
Interface	V90-Mount
Focal length [mm]	122
F/# range	F/3.8 ... F/11
Numerical aperture [object image]	0.05 0.08
Max. sensor size [mm]	82
Max. angle of view [°]	22
Rec. magnification range	0.7 (-0.65 ... -0.75)
Rec. working distance range [mm]	164 ... 139
Storage temperature [°C]	0 ... +50
Net. weight [standard] [g]	–
Additional info	Max. chief ray angle in object space = 11.2°
f'eff [mm]	122.19
SF [mm]	-22.53
S'F' [mm]	60.90
HH' [mm]	11.82
$\beta'P$	0.99
SEP [mm]	145.55
S'AP [mm]	-60.47
Σd [mm]	217.83

MTF CHARTS

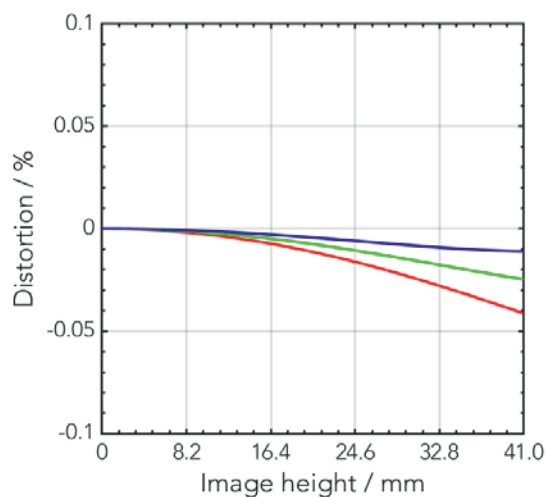
Spectrum name	VIS									
Wavelengths [nm]	436	445	475	510	525	540	575	625	635	675
Rel. weights [%]	1.1	3.3	10	9.5	7.1	14	26.1	18.1	5.6	5.2





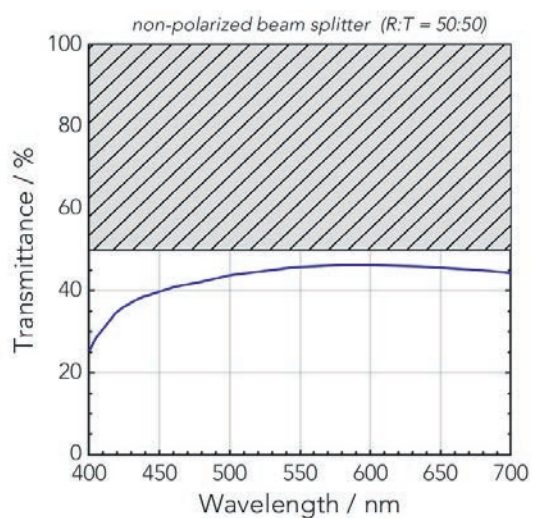
REL. ILLUMINATION VS. IMAGE HEIGHT

- - F/# = 3.8, $\beta = -0.65$
- - F/# = 4.5, $\beta = -0.65$
- - F/# = 5.6, $\beta = -0.65$
- F/# = 3.8, $\beta = -0.70$
- F/# = 4.5, $\beta = -0.70$
- F/# = 5.6, $\beta = -0.70$
- ... F/# = 3.8, $\beta = -0.75$
- ... F/# = 4.5, $\beta = -0.75$
- ... F/# = 5.6, $\beta = -0.75$



DISTORTION VS. IMAGE HEIGHT

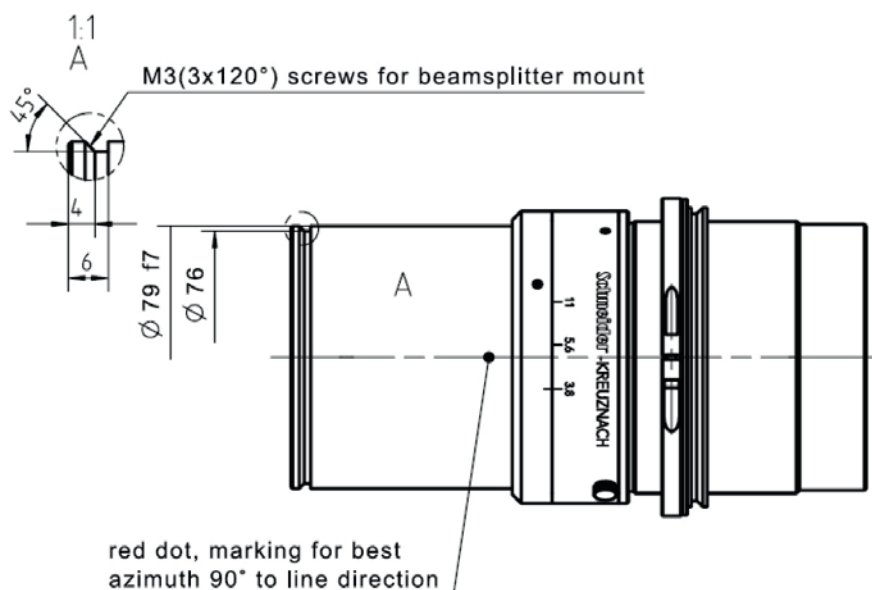
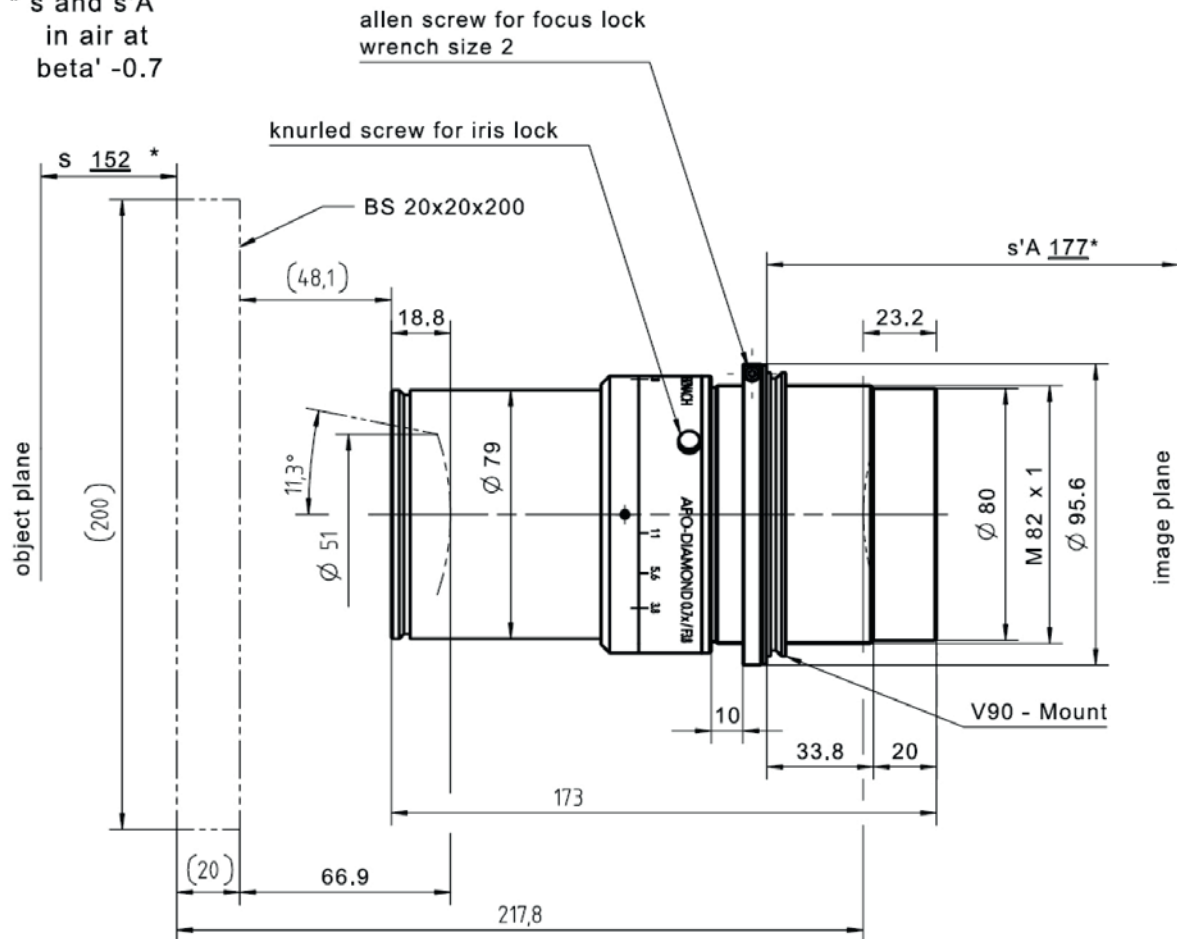
- $\beta' = -0.65$
- $\beta' = -0.70$
- $\beta' = -0.75$



TRANSMITTANCE VS. WAVELENGTH

TECHNICAL DRAWINGS

* s and s'A
in air at
beta' -0.7



ANNOTATION

Focal length	Nominal focal length
F/#	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'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
B'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
Σ 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)
B'	Magnification (= image size / object size), negative value because image is inverted
OO'	Distance between object and image

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