EMERALD 4.0/80 V48

This V48-Mount lens is designed for large sensors up to 82 mm diagonal/length. It is characterized by an excellent imaging performance in a wide working distance range from 0.35 m to infinity. With optional V48 extension tubes and adapters it can be mounted to all common camera mounts. The robust mechanics and a special focus setting and locking mechanism ensures highest mechanical stability even in harsh enviornment.

Key features

- V48-Mount
- 82 mm image circle
- Large working distance range
- Compact and robust design

Applications

- Machine Vision
- AOI (Automated Optical Inspection)
- Web inspection
- Factory automation

Technical specifications

Type [standard]	V48
ID [standard]	1086888
Interface	V48-Mount
Focal length [mm]	80
F/# range	F/4 ... F/16
Numerical aperture [object | image]	- | 0.12
Max. sensor size [mm]	82
Max. angle of view [°]	54
Rec. magnification range	-0.25 ... 0
Rec. working distance range [mm]	380 ... ∞
Max. mechanical focus travel [mm]	13.1
Filter thread [mm]	M43 x 0.75
Storage temperature [°C]	-25 … +70
Net. weight [g]	204
Additional info	-
f'eff [mm]	80.34
SF [mm]	-57.92
S'F' [mm]	64.67
HH' [mm]	-1.81
ß'P	1.03
SEP [mm]	20.29
S'AP [mm]	-17.86
Σd [mm]	36.28

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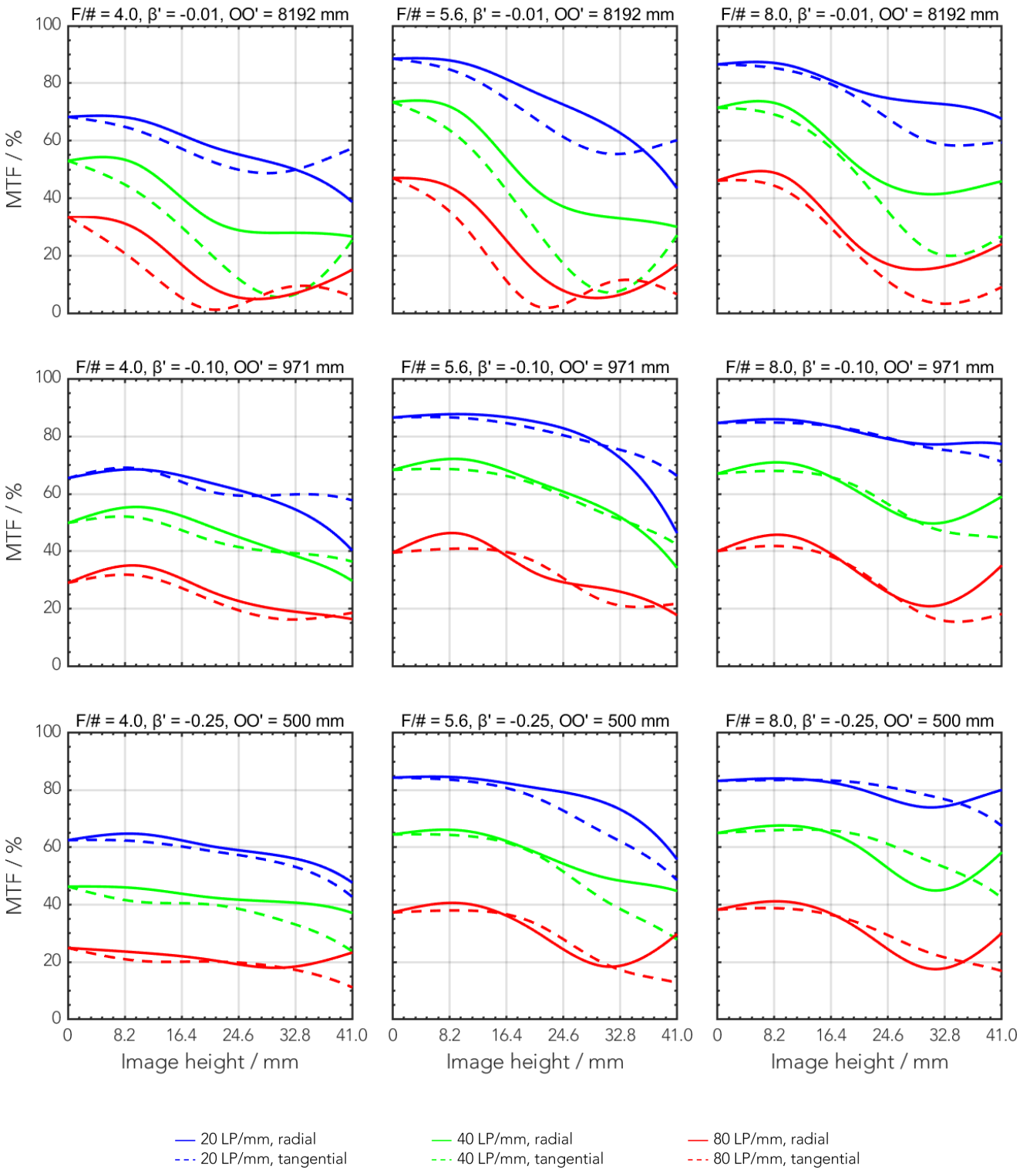
EMERALD 4.0/80 V48

MTF charts

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



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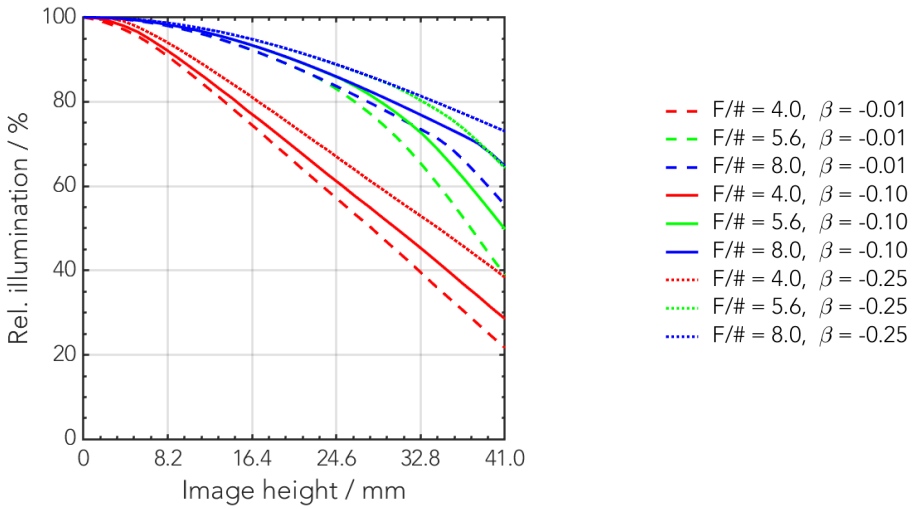
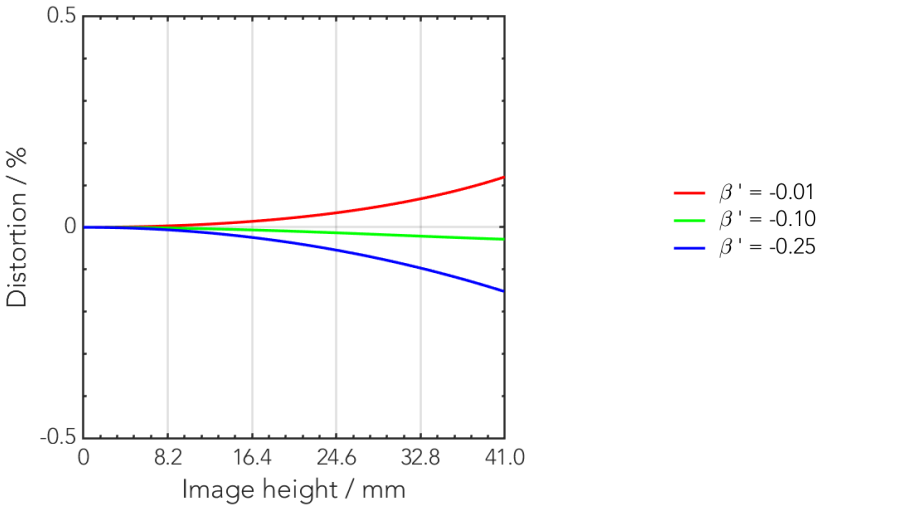
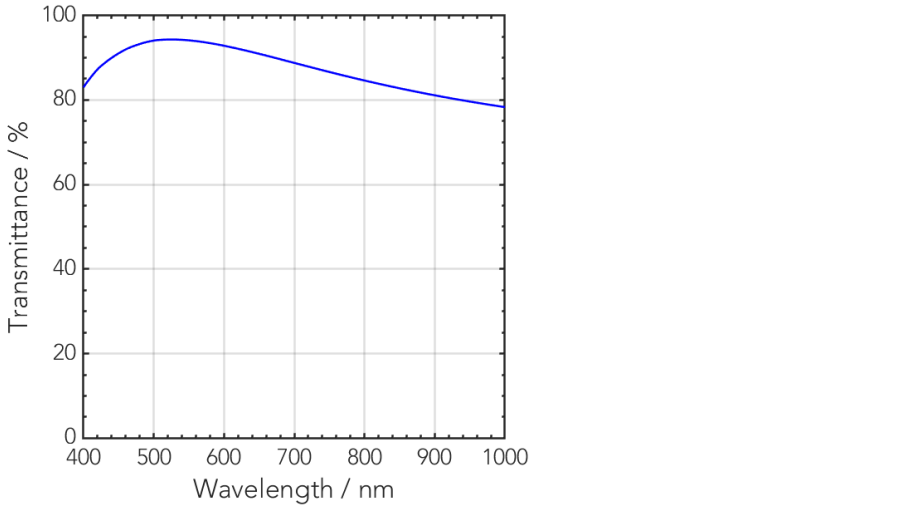
Rel. illumination vs. image height



Distortion vs. image height



Transmittance vs. wavelength



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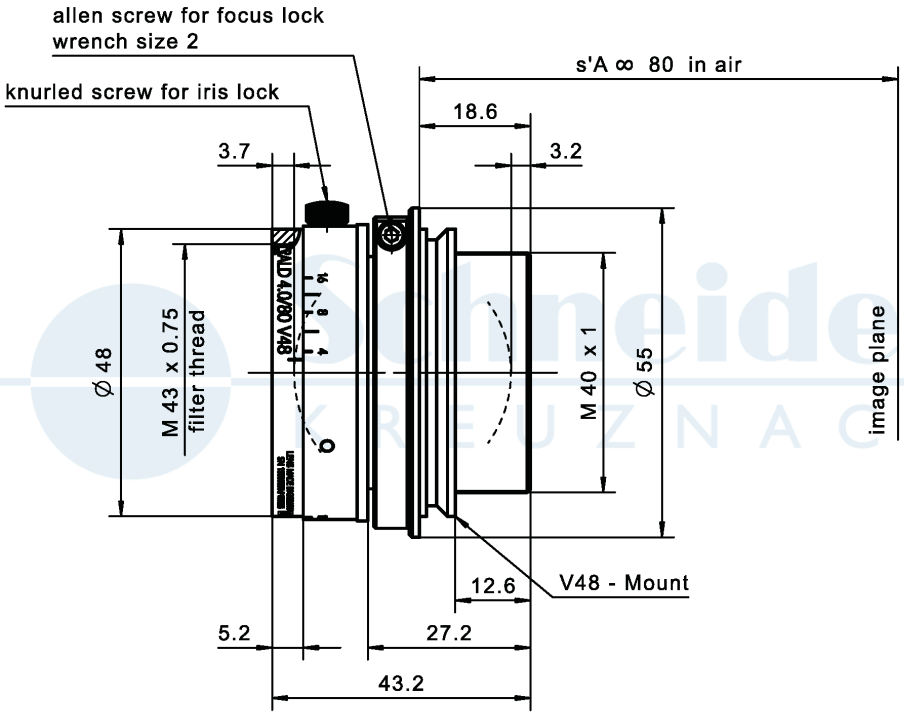
Technical drawings



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EMERALD 4.0/80 V48

Accessories	Mount	Eff. length	ID
Adapter	V48 / C-Mount	8.5 mm	1072650
	V48 / TFL-Mount	8.5 mm	1098492
	V48 / M42 x 0.75	8.5 mm	1072652
	V48 / M42 x 1	8.5 mm	1072660
	V48 / M58 x 0.75	10 mm	1072659
Extension tube	V48 / V48	10 mm	1072661
	V48 / V48	25 mm	1072651
	V48 / V48	50 mm	1072662

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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'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
ß'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)
ß'	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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