PEARL 2.8/35 M42x1

This vibration-resistant lens is designed for use with large-area and line-scan sensors in harsh conditions, as encountered in many industrial applications. Its highly homogeneous imaging performance across the entire image field, combined with low chromatic aberrations and geometric distortions, ensures very high image quality across a wide magnification range. The M42 x 1 mount with integrated focusing is compatible with a variety of industrial line and area sensor cameras.

Key features

- Uniform MTF from center to edge
- Low distortion
- Low chromatic aberrations
- M42x1 mount with integrated focusing

Applications

- Machine Vision
- AOI (Automated Optical Inspection)
- FPD/PCB inspection
- Logistics

Technical specifications

Type [standard]	M42x1
ID [standard]	1112807
Interface	M42x1
Focal length [mm]	35
F/# range	F/2.8 ... F/22
Numerical aperture [object | image]	- | 0.18
Max. sensor size [mm]	28.7
Max. angle of view [°]	45
Rec. magnification range	-0.25 ... 0
Rec. working distance range [mm]	148 ... ∞
Min. working distance without extension tubes [mm]	145
Filter thread [mm]	M37 x 0.75
Storage temperature [°C]	-25 … +70
Net. weight [g]	135
Additional info	-
f'eff [mm]	35.03
SF [mm]	-19.23
S'F' [mm]	23.41
HH' [mm]	-4.34
ß'P	1.07
SEP [mm]	13.54
S'AP [mm]	-14.02
Σd [mm]	23.07

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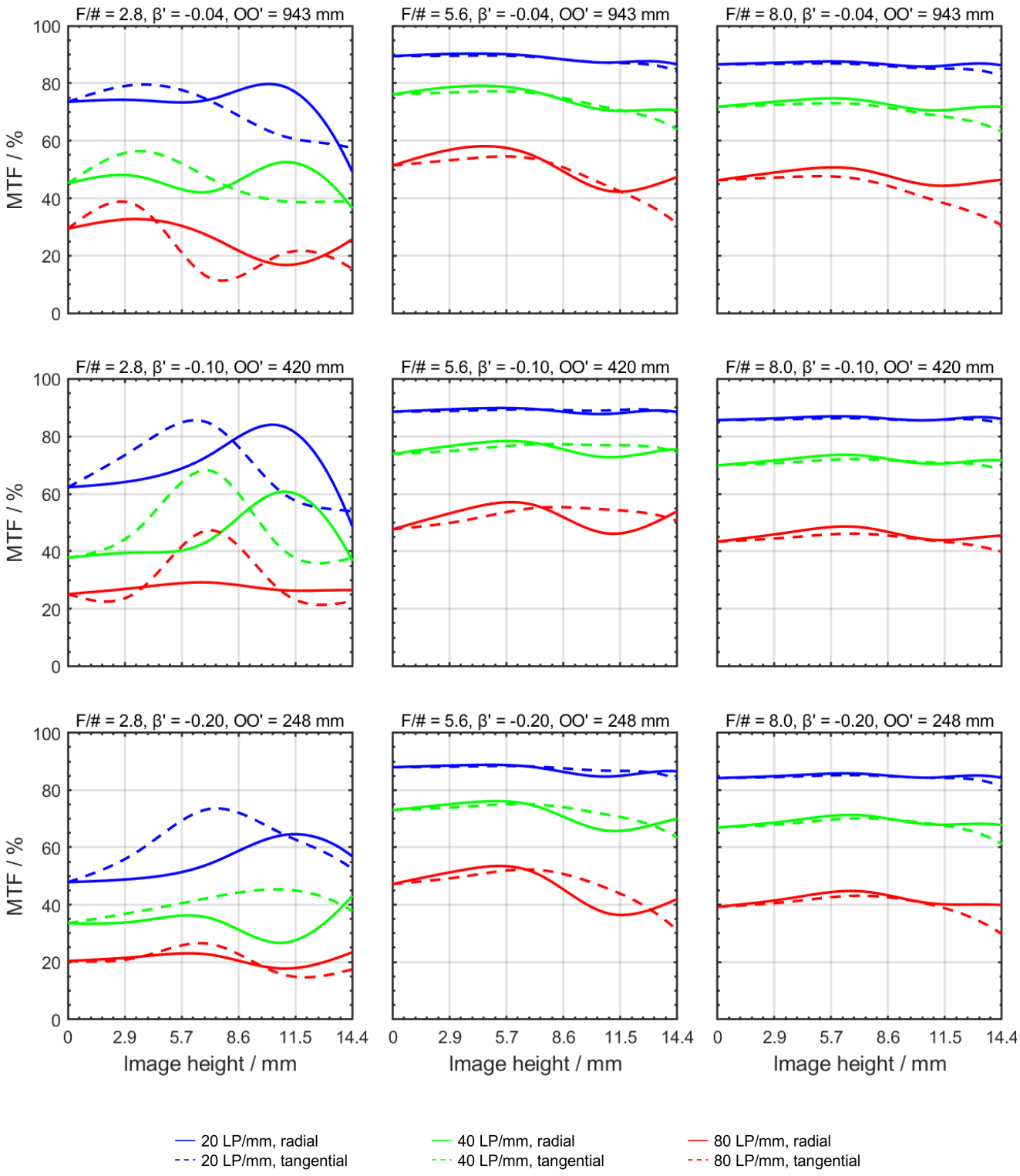
PEARL 2.8/35 M42x1

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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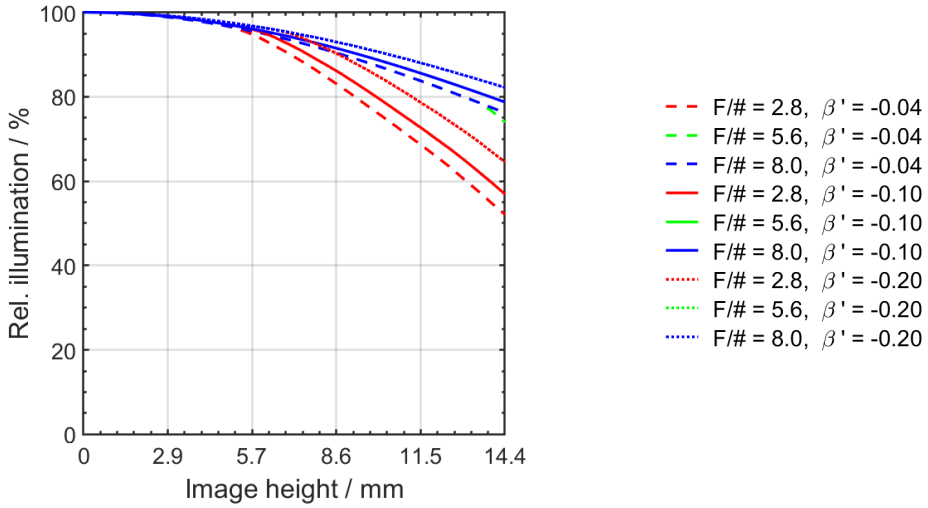
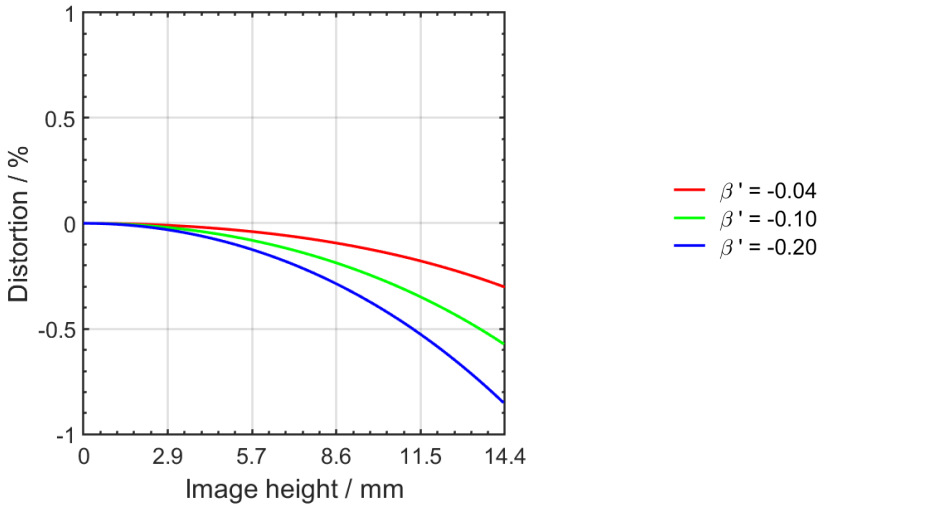
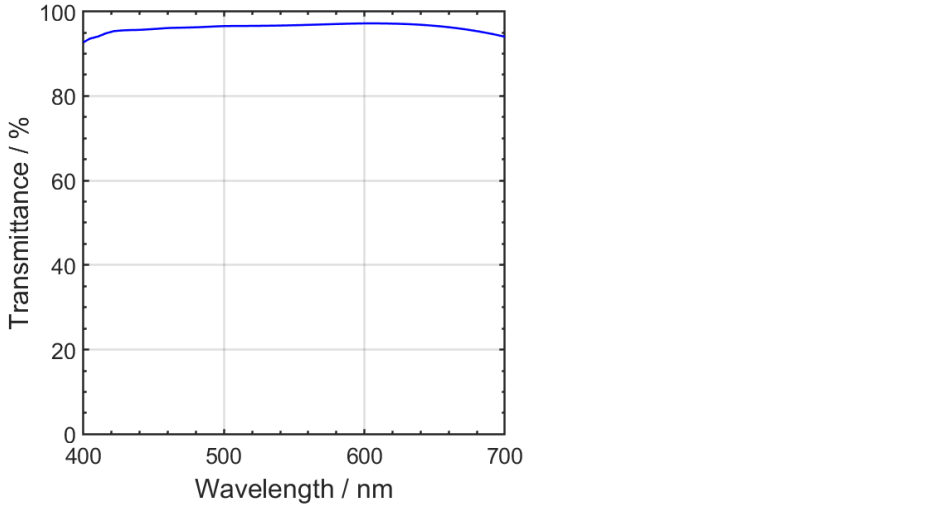
Rel. illumination vs. image height



Geometric distortion vs. image height



Transmittance vs. wavelength



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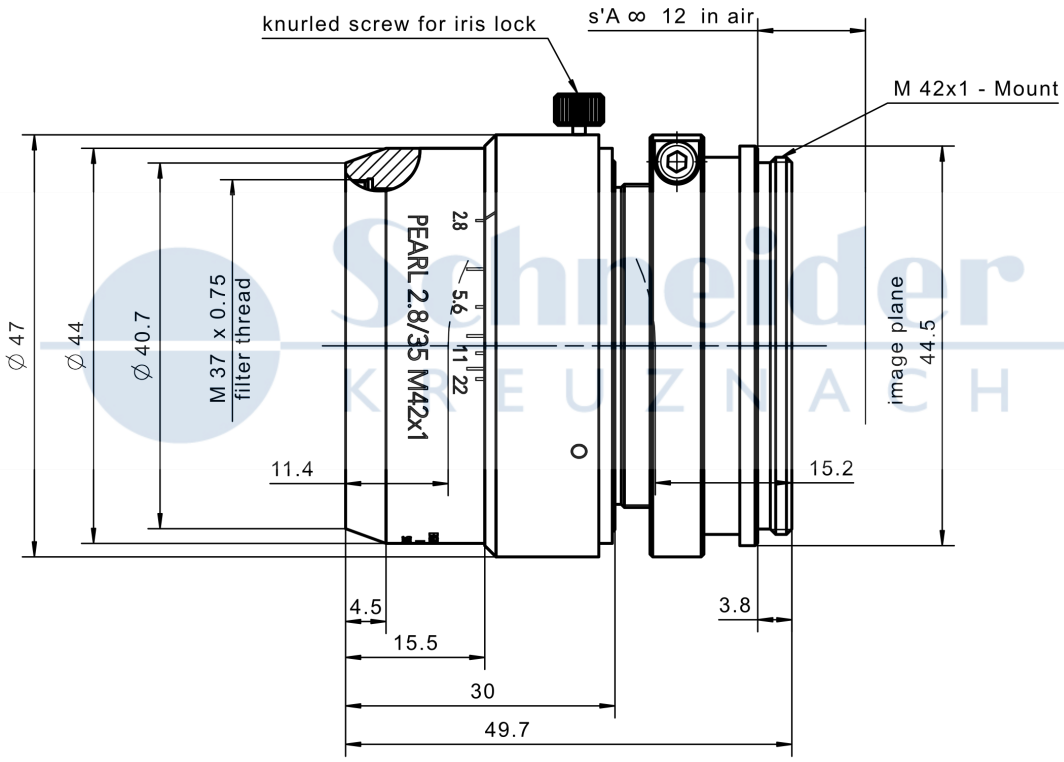
Technical drawings



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Accessories	Mount	Eff. length	ID
Extension tube	M42 x 1 / M42 x 1	5 mm	1105877
	M42 x 1 / M42 x 1	10 mm	1105878

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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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