

## High-NA chromatic and field corrected Endoscopic Imaging Objectives

GRINTECH's new high-NA Endoscopic Imaging Objectives with object Numerical Apertures of 0.75 are offered in a broad achromatic and field corrected version to significantly increase the usable field of view. A GRIN-refractive multilens hybrid design allows a broader chromatic and off-axis correction resulting also in a higher confocal sensitivity (confocal signal throughput) compared to the previous versions with diffractive correcting elements.

### Applications:

In vivo endomicroscopy, single photon fluorescence microscopy, nonlinear optical imaging modalities (SHG, TPF), tissue imaging, flexible fluorescence microscopy, NA conversion

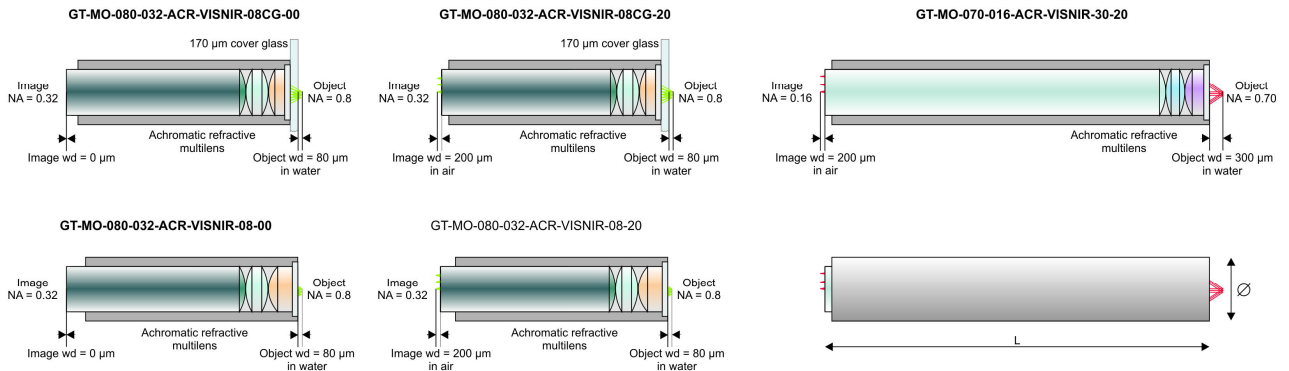
GT-MO-080-032-ACR-VISNIR-xx-xx series represents high resolution field and color corrected objectives with a magnification of 2.3. The image side NA of 0.32 matches to imaging fiber bundles. Color correction is from 450 nm to 900 nm with an optimal performance from 488 nm to 520 nm. The objectives are assembled in stainless steel mounts.

GT-MO-070-016-ACR-VISNIR-30-20 is optimized for wavelengths of 450 nm and 900 nm to achieve an ideal performance in SHG and TPF applications within a large field of view.

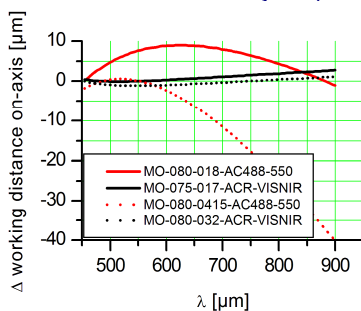
Four combinations of proximal and distal working distances are offered as listed below:

GT-MO-080-032-ACR-VISNIR-...	...08CG-00	...08CG-20	...08-00	...08-20
Object NA	0.7	0.7	0.75	0.75
Object WD in water [ $\mu\text{m}$ ]	80	80	80	80
Designed for cover glass [ $\mu\text{m}$ ]	170	170	none	none
Image NA	0.32	0.32	0.32	0.32
Image WD in air [ $\mu\text{m}$ ]	0	200	0	200
Magnification	2.2	2.2	2.3	2.3
Dimensions $\varnothing$ / L [mm]	1.4 / 4.89	1.4 / 4.57	1.4 / 5.02	1.4 / 4.7

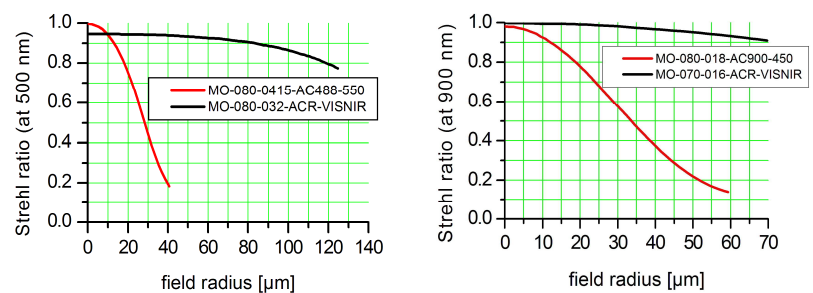
GT-MO-070-016-ACR-VISNIR-30-20	
Object NA	0.7
Object WD in water [ $\mu\text{m}$ ]	300
Designed for cover glass [ $\mu\text{m}$ ]	none
Image NA	0.16
Image WD in air [ $\mu\text{m}$ ]	200
Magnification	4.5
Dimensions $\varnothing$ / L [mm]	1.4 / 8.36



Chromatic Aberration in Object Space



Field Dependent Strehl Ratio in Object Space (From Optical Design)



Variations due to modifications of the production process are possible. It is the user's responsibility to determine suitability for the user's purpose. For tolerances, handling and storage see page 22