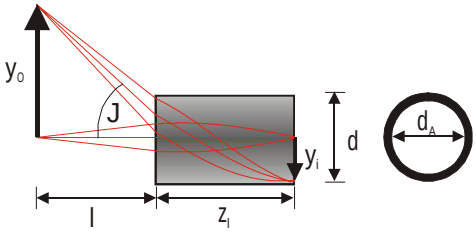
GRIN Objective Lenses for Endoscopy

- § Gradient index lenses for endoscopic imaging optics
- § Non-toxic silver-based glass material, view angle J = ± 30°
- § Plane surfaces, low chromatic aberration
- § Combination with prisms and beam splitter cubes on request
- § Aperture and field stops (black chromium coating ring on lens surface generated by photolithography) on request
- § Certification: Biological safety – toxicology (EN ISO 10993-1)



Order example: GT-IFRL-100-010-50-CC

- Coating Code
- NA: 0.5
- Working distance: 10 mm
- Diameter: 1.0 mm
- Imaging Focusing Rod Lens
- GRINTECH

- § Working distance and lens length deviating from these standards can also be produced
- § ZEMAX files can be DOWNLOADed from our website

Diameter d (mm)	Working distance l (mm)	Lens length[1] z_l (mm)	Parax. Magnification $M = y_o/y_i$	Refractive index at the center of the profile n_o	Product code
2.0*	Infinity	4.79	--	1.635	GT-IFRL-200-inf-50-CC
2.0	20	5.06	-10.78	1.635	GT-IFRL-200-020-50-CC
2.0	10	5.33	-5.46	1.635	GT-IFRL-200-010-50-CC
2.0	5	5.84	-2.86	1.635	GT-IFRL-200-005-50-CC
1.8*	Infinity	4.19	--	1.635	GT-IFRL-180-inf-50-CC
1.8	20	4.40	-12.29	1.635	GT-IFRL-180-020-50-CC
1.8	10	4.61	-6.21	1.635	GT-IFRL-180-010-50-CC
1.8	5	5.01	-3.22	1.635	GT-IFRL-180-005-50-CC
1.0	Infinity	2.23	--	1.635	GT-IFRL-100-inf-50-CC
1.0	20	2.29	-23.1	1.635	GT-IFRL-100-020-50-CC
1.0	10	2.35	-11.58	1.635	GT-IFRL-100-010-50-CC
1.0	5	2.46	-5.86	1.635	GT-IFRL-100-005-50-CC
0.85	Infinity	1.93	--	1.635	GT-IFRL-085-inf-50-CC
0.85	10	2.02	-13.34	1.635	GT-IFRL-085-010-50-CC
0.85	5	2.11	-6.73	1.635	GT-IFRL-085-005-50-CC
0.6	Infinity	1.32	--	1.635	GT-IFRL-060-inf-50-CC
0.6	10	1.36	-19.48	1.635	GT-IFRL-060-010-50-CC
0.6	5	1.40	-9.78	1.635	GT-IFRL-060-005-50-CC
0.5	Infinity	1.13	--	1.635	GT-IFRL-050-inf-50-CC
0.5	10	1.16	-22.71	1.635	GT-IFRL-050-010-50-CC
0.5	5	1.19	-11.39	1.635	GT-IFRL-050-005-50-CC
0.35	5	0.79	-16.9	1.635	GT-IFRL-035-005-50-CC
0.25	5	0.56	-23.63	1.635	GT-IFRL-025-005-50-CC

[1] Design Wavelength 570 nm

GRINTECH Objective lenses are available with AR coatings (R < 0.5 % for the design wavelength and incidence angles of 0 ... 30° corresponding to measurements on a reference substrate)

Coating Code: NC: no coating (reflection loss approx. 12 %)
C1: AR coating for VIS on both sides

Variations due to modifications of the production process are possible.
It is the user´s responsibility to determine suitability for the user´s purpose.

Tolerances:
lens length z_l: ± 5% due to variations of the gradient constant
diameter d: + 0 / -0.01 mm
Please ask for tighter diameter tolerances

Surface quality:
5 / 3 x 0.025; L 3 x 0.005; E 0 (defined by DIN ISO 10110-7:2000-02).
The surface quality is defined within 90 % of the lens diameter. Outside of this area defects are allowed.

Note: GRINTECH objective lenses can be combined with GRIN relay lenses to complete endoscopic imaging systems by gluing the optical surfaces directly together. Prisms to change the direction of view can also be glued directly on the front surface of the objective lens. We are happy to advise you.

* not available for following applications : Please note our partnership with Inscopix as our exclusive distributor for the field of non-confocal, single photon epi-fluorescence imaging for neuroscience applications in non-humans (see page 11).

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