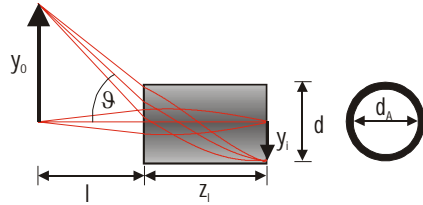


GRIN Objective Lenses for Endoscopy

- Gradient index lenses for endoscopic imaging optics
- Non-toxic silver-based glass material, view angle $\vartheta = \pm 30^\circ$
- 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) are available on request
- Certification: Biological safety – toxicology (EN ISO 10993-1)
- Design wavelength: 570 nm



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 ₀	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
	10	5.33	-5.46	1.635	GT-IFRL-200-010-50-CC
	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
	10	4.61	-6.21	1.635	GT-IFRL-180-010-50-CC
	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
	20	2.29	-23.1	1.635	GT-IFRL-100-020-50-CC
	10	2.35	-11.58	1.635	GT-IFRL-100-010-50-CC
	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
	10	2.02	-13.34	1.635	GT-IFRL-085-010-50-CC
	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
	10	1.36	-19.48	1.635	GT-IFRL-060-010-50-CC
	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
	10	1.16	-22.71	1.635	GT-IFRL-050-010-50-CC
	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

- Working distance and lens length deviating from these standards are available on request
- ZEMAX files can be [DOWNLOADED](#) from our website
- For tolerances, handling and storage see page 22

GRIN rod lenses are offered without antireflection coatings as standard. Antireflection coatings (R < 1.0 % for the design wavelength and incidence angles of 0 ... 30° corresponding to measurements on a reference substrate) can be offered:

Coating Code: NC: no coating (reflection loss approx. 12 %) - standard
C1: $\lambda = 450 \dots 690$ nm

One - sided coatings are available on request.

Order example:

GT – IFRL – 100 – 010 – 50 – CC	
GT	GRINTECH
IFRL	Imaging Focusing Rod Lens
100	Diameter: 0.25, 0.35, 0.5, 0.6, 0.85, 1.0, 1.8 or 2.0 mm
010	Working distance: 5, 10, 20 mm or infinity
50	NA: 0.50
CC	Coating Code: NC or C1

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

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 9).