Technical data sheet

Line Generator 5° 15° 30° 45° 60°

Variable microlens arrays

Acylinders or aspherical cylinders are lenses with a cylindrical surface whose cross-section deviates from the circular shape. In close dialogue with our customers, we develop and produce individual acylinder optics for a wide range of applications, from prototype status to series production. Most cylindrical or acylindrical lenses are customised solutions, specially developed and manufactured for the specific requirements and applications of our customers.

Line generators redistribute the incoming gaussian profile of the laser to a homogeneous line at the output. Our line generators provide very high repeatability compared to conventionally manufacured lenses (by grinding and polishing).

Technical specifications

	Length, parallel to cylindical axis in mm		Center thickness in mm		Centering in mm	Free aperture in mm	Working distance in mm
		tolerance		tolerance			
Acylinders	4.0	± 0.01	1.8	± 0.05	± 0.02	3.6 x 3.6	≥ 150

More features

Input beam diameter	Maximum intensity deviation	Standard range of wavelength
• 1.6 mm (1 / e²)	• < 30 % below the maximum value in 90 of the line length	• 400 - 800 mm AR-Coating • Design wavelength 550

Precision glass molded aspherical cylinder lens for the generation of a laser line.
AR-Coating possible, RoHS conform. Angle (FWHM) in 5°, 15°, 30°, 45°, 60° on stock.

Other sizes and tolerances available per request.

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Technical data sheet

Glass molded acylindrical lenses

Highest precision - from development to series production

GD Optics has developed its own glass molding process especially for the production of small aspherical cylindrical lenses. The process is very economical for lenses in a size range of 0.5 - 5 mm in medium to high quantities.

Technical specifications

	Length / width f / w in mm		Center thickness MD in mm		Effective focal length EFL in mm	Back focal length BFL in mm	Radius of curvature ROC in mm	Numerical aperture NA in mm	Form accuracy in nm
		tolerance		tolerance					
Acylinders	0.5 - 30	± 0.02	1 - 6,5	± 0.01	≥ 0.3	≥ 0.05	≥ 0.2	0.8*	< 150**

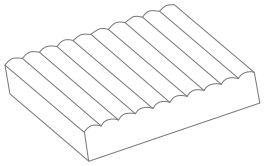
* depending on EFL ** Peak to valley

More features

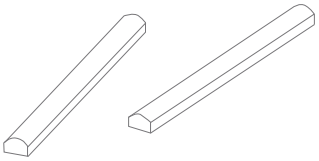
Material	Type	Applications
• Optical glasses • High index possible	• Plano-convex, convex-convex • Perpendicular and parallel axes • Array	• Fast axis collimation • Slow axis collimation • Beam circularization and collimation • Line generation, homogenization

Molded aspherical lenses and optical components in glass for telecommunication and laser collimating.
Customized solutions, stock items, coatings as required.

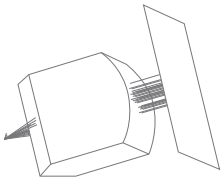
Other sizes and tolerances available per request.



01 Cylinder lens array



02 Fast axis collimators



03 Crossed Cylinder lenses

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Technical data sheet

Double-sided glass microlens arrays

Variable microlens arrays

Microlens arrays for very different applications offer great potential for future developments by enabling components to be further reduced in size, lowering production costs and increasing the performance of the end product.

As a series manufacturer, we supply microlens arrays and acylinder lens arrays, with a size of up to 50 x 50 mm^2.
A wide variety of spherical lenses with a broad parameter field of lens radius, lens height and lens pitch can be combined in an array. Thanks to our special processes and our own toolmaking, the dead zones are very small and the proportion of used surface is very large.

Technical specifications

	Array diameter / aperture in mm		Center thickness in mm		Lenslet diameter in mm		Fill factor in %	Surface roughness in nm	Offset front to back in mm
		tolerance		tolerance		tolerance			
Arrays	25	± 0.01	0.5 - 6.5	± 0.01	0.1 - 3	± 0.01	99	< 5	± 0.01

* depending on pitch

More features

Lenslet aperture typ	Radius of curvature	Offset front to back
• Circular / rectangular / hexagonal	• 0.15 mm - 30 mm • Equal or more than ± 2 %	• Less than 10 µm

Double-sided glass microlens arrays.

Other sizes and tolerances available per request.

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Technical data sheet

Aspheres

Customised, efficient and high quality

Compared to spherical lenses, aspheres have significantly better imaging properties. This is due to non-spherical shape. The resulting essential advantage is the ability to correct spherical aberrations.

Precision-molded aspheres are our speciality. We manufacture customised and standard aspheres with a diameter of up to 40 mm. Thanks to our innovative molding processes, we can also produce biconvex or meniscus lenses. In addition to the production of collimators, we also have experience in the production of special shapes of aspheres, such as segmented lenses or correction lenses. Thanks to our innovative processes, we can also produce biconvex or meniscus lenses.

Technical specifications

	Diameter ØD in mm	Center thickness in mm	Edge thickness in mm	Clear aperture in mm	Numerical aperture NA in mm	Focal length EFL in mm	Back focal length BFL in mm	Axial wave front quality RMS in waves	λ in nm
AC002	2.54	0.8	0.5	1.6	0.4	2.0	1.5	0.04	1,310 / 1,550
AC024	3.00	1.84	0.96	2.70	0.47	2.86	1.71	0.05	1,507
AC040	6.50	2.36	1.62	5.30	0.30	8.87	7.41	0.05	635
AC048	1.90	0.8	0.5	1.6	0.4	2.0	1.5	0.04	1,520
AC055	7.20	2.20	1.46	6.00	0.27	11.00	9.54	0.10	635
AC055a	6.00	2.20	1.51	5.50	0.25	11.00	9.54	0.10	635
AC057	6.37	4.00	3.28	5.10	0.32	8.00	5.51	0.05	780
AC059	10.50	3.00	1.76	9.10	0.30	15.00	13.14	0.10	780
AC067	4.50	2.15	1.83	3.60	0.19	9.40	8.07	0.05	715
AC090	5.00	2.56	2.05	3.80	0.28	6.50	5.00	< 0.05	650
AC130	15.00	5.00	–	13.00	0.43	15.20	12.07	0.1	976
AC144	8.00	2.663	–	7.200	–	11.32	9.75	0.08	635

Molded aspherical lenses and optical components in glass for telecommunication and laser collimating.
Customized solutions, stock items, coatings as required.

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