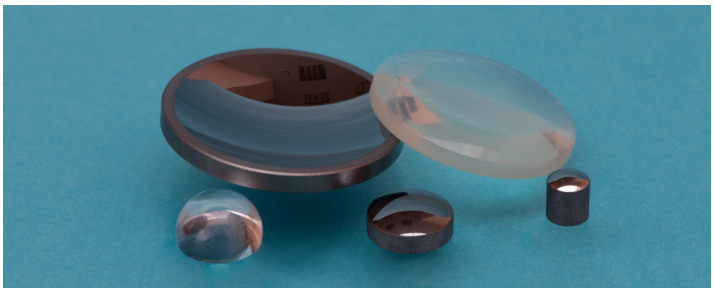
THz Lenses

We offer THz lenses made of TPX and HRFZ-Si and THz axicons made of HRFZ-Si.



1. TPX Lenses

Common specification:

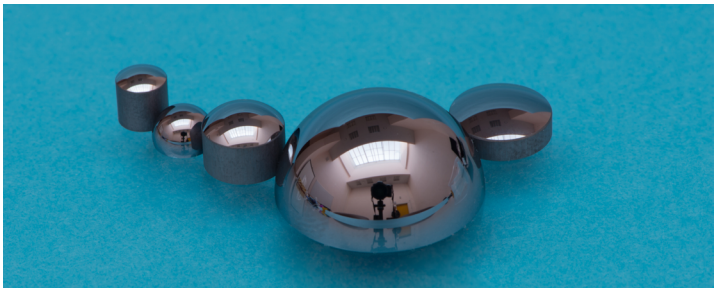
Material	TPX
Type	plano-convex, bi-convex
Available diameters, mm	to 100
Dimensions tolerance, mm	+ /-0.25
Clear aperture, %	>=90
Effective focal length (EFL) tolerance, %	+/- 1
Surface quality (two-sided polishing), scr/dig	80/50
Surface accuracy, mm	+/-0.01 deviation from ideal sphere and plane

The following TPX lenses are available from stock:

No.	Diameter		EFL*
	mm	inches	mm
1	25.4	1.0	25.0
2	25.4	1.0	50.0
3	25.4	1.0	100.0
4	25.4	1.0	200.0
5	38.1	1.5	50.0
6	38.1	1.5	75.0
7	38.1	1.5	100.0
8	38.1	1.5	150.0
9	38.1	1.5	200.0
10	50.8	2.0	50.0
11	50.8	2.0	75.0
12	50.8	2.0	100.0
13	50.8	2.0	150.0
14	50.8	2.0	200.0

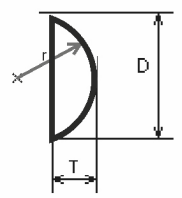
*All EFLs are calculated for wavelength 300 µm. EFL deviations related with refraction index dispersion at the edges of THz range (30-3000 µm) and within visible range are negligible in comparison with EFL tolerances manufactured. Alternate sizes (max thickness 30 mm) and custom designs are manufactured upon request.

2. HRZF-Si Lenses

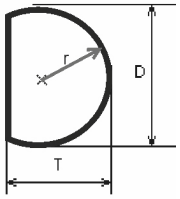


Common specification:

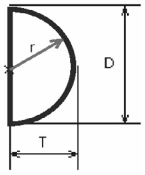
Material	HRFZ-Si
Type	spherical,hyper-hemispherical, hemi-spherical, hypo-hemispherical, and bullet
Available diameters, mm	2–150
Dimensions tolerance, mm	+/-0.1
Clear aperture, %	>=90
Surface quality (two-sided polishing), scr/dig	80/50
Surface accuracy, mm	+/-0.01 deviation from ideal sphere and plane
Coatings	AR coatings upon request



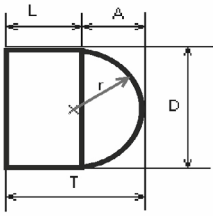
T<D/2
Hypo-Hemispherical



T>D/2
Hyper-Hemispherical



T=D/2
Hemispherical



T = L + A, where A <= D/2
Bullet

The polished "ball-shaped" blanks of HRFZ-Si (with diameters 2.0, 4.0, 6.0, 8.0, 10.0, and 12.0 mm) are always in stock. Upon your request hyper-/hypo-/hemi-spheres will be supplied within 2 weeks as the flat surface of the lens can be polished for the required thickness.

The finished parts of different dimensions are available from stock and supplied within a week. Please check the Optics stock at our website. For price quotation and delivery please e-mail us.

We also offer HRZF-Si meniscus lenses .

16 Domostroitelnaya str.
194292 St. Petersburg, Russia
www.tydex.ru

Phone: 7-812-3318702
Fax: 7-812-3092958
E-mail: optics@tydex.ru

TYDEX®

THz Lenses

Common specification:

Material	HRFZ-Si
Type	positive meniscus
Available diameters, mm t	to 100
Diameter tolerance, mm	+0.0 / -0.1
Thickness tolerance, mm	+/-0.1
Edge thickness variation, mm	<= 0.05
Clear aperture, %	90
Effective focal length (EFL) tolerance, %	+/-1
Surface quality (two-sided polishing), scr/dig	80/50
Surface figure	varies depending on radius
Coatings	AR coatings upon request

The following HRZF-Si meniscus lenses are available from stock:

No.	Diameter		EFL*
	mm	inches	mm
1	25.4	1.0	25.0
2	25.4	1.0	50.0
3	25.4	1.0	100.0
4	25.4	1.0	200.0
5	38.1	1.5	50.0
6	38.1	1.5	75.0
7	38.1	1.5	100.0
8	38.1	1.5	150.0
9	38.1	1.5	200.0
10	50.8	2.0	25.0
11	50.8	2.0	50.0
12	50.8	2.0	75.0
13	50.8	2.0	100.0
14	50.8	2.0	150.0
15	50.8	2.0	200.0

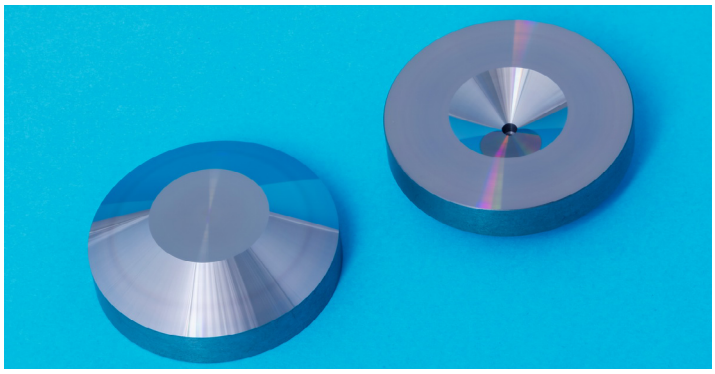
*All EFLs are calculated for wavelength 300 µm. EFL deviations related with refraction index dispersion at the edges of THz range (30-3000 µm) and within visible range are negligible in comparison with EFL tolerances manufactured.

Alternate sizes and custom designs are manufactured upon request. Negative meniscus lenses are available.

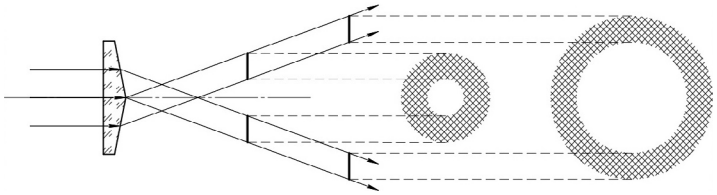
Tydex also produces aspherical silicon lenses according to customer specification. Quality of aspherical surface characterises by a roughness Ra of 15 nm.

For price quotation and delivery please fill in Request Form on our website.

3. HRFZ-Si Axicones



A conical lens, or axicone, is used to transform a Gaussian beam into a Bessel beam. An axicone focuses radiation into a line consisting of a set of points along the optical axis. The line forms an equal-width ring with diameter increasing with the distance from the optical element.



Common specification:

Material	HRFZ-Si
Type	axicone (conical lens)
Available diameters, mm t	25-150
Diameter tolerance, mm	+/-0.2
Angular tolerance, arc. min.	+/-30
Roughness	Ra 15 nm
Coatings	AR coatings upon request

HRFZ-Si axicones are manufactured upon request.

Please read the article Terahertz Vortex Beam as a Spectroscopic Probe of Magnetic Excitations that describes how terahertz vortex beams were generated using transparent axicons. The link you will find on our web-site.

For price quotation and delivery please fill in Request Form at our website.

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194292 St. Petersburg, Russia
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Phone: 7-812-3318702
Fax: 7-812-3092958
E-mail: optics@tydex.ru

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