HIGH-PERFORMANCE OPTICS FOR A VARIETY OF APPLICATIONS

- Benefit from the quality and performance of all-glass aspheres
- Easily transition from prototype phase to high-volume production
- Customize to fit your application or choose from over 100 standard aspheric designs
- RoHS-compliant, ultra-high quality glass

Aspheric lenses are known for their optimal performance but the expense of fabricating them has inhibited their use. LightPath's glass molding technology has enabled high volume production of aspheric optics while maintaining the highest quality at an affordable price. Because molding is the most consistent and economical way to produce aspheres in large volumes, LightPath has perfected this method to offer the most precise aspheric lens available. LightPath offers standard and custom-made lenses, all designed by our expert optical design engineers.

Geltech Asphere Performance Parameters

Lens Code	Focal Length (mm)	Numerical Aperture	Outer Diameter (mm)	Working Distance (mm)	Page
355104	0.3	0.65	1.6	0.150 / .975	8
355631	0.39	0.55 / 0.13	1.20 x 1.20	0.284 / 1.902	8
355070	0.43	0.06 / 0.66	1.20 x 1.20	5.00 / 0.270	8
355485	0.55	0.50 / 0.10	1.00	0.30 / 3.030	8
355487	0.55	0.50 / 0.11	1.00	0.276 / 2.940	8
355465	0.55	0.50 / 0.10	1.0 x 1.0	0.250 / 2.874	8
355536	0.60	0.60	1.24	0.22	8
355880	0.70	0.60	2.50	0.33	8
355840	0.75	0.47	3.00	0.43	8
355915	0.80	0.12 / 0.50	1.30	3.931 / 0.669	8
355960	1.00	0.62	1.824	0.24	9
355198	1.05	0.5	1.4	.610	9
355200	1.14	0.43 / 0.124	2.40	4.81	9
355201	1.14	0.124 / 0.430	4.93	1.129 / 4.809	9
354450	1.16	0.30 / 0.30	1.80	1.67 / 1.67	9
357786	1.41	0.502	2.00	1.20	9
356785	1.42	0.62	2.75	0.86	9
354710	1.49	0.53	2.65	1.02	9

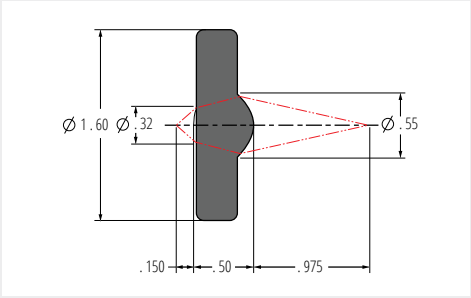
Geltech Asphere Performance Parameters

Lens Code	Focal Length (mm)	Numerical Aperture	Outer Diameter (mm)	Working Distance (mm)	Page
355957	1.8	0.4	3.0	1.1	9
355755	1.94	0.15 / 0.15	1.70	3.570 / 3.570	10
355150	2.00	0.5	3.00	1.4	10
355151	2.00	0.504	3.00	1.029	10
355410	2.51	0.20	1.805	1.84	10
355615	2.51	0.201	2.05	1.731	10
355945	2.51	0.317	3.00	1.761	10
356300	2.54	0.66	4.00	1.55	10
355160	2.73	0.55	4.00	2.37	10
355390	2.75	0.55	4.50	2.16	10
355440	2.76	0.52 / 0.26	4.70	7.090 / 2.713	10
355392	2.80	0.6	4.00	1.5	11
355660	2.976	0.52	4.00	1.56	11
354330	3.10	0.7	6.325	1.8	11
355330	3.10	0.77	6.325	1.59	11
353515	3.50	0.4	3.00	2.3	11
355545	3.50	0.38	3.50	2.3	11
355970	3.70	0.21	1.80	3.030	11

Geltech Asphere Performance Parameters					
Lens Code	Focal Length (mm)	Numerical Aperture	Outer Diameter (mm)	Working Distance (mm)	Page
355970	3.70	0.21	1.80	3.030	11
357775	4.00	0.6	6.325	2.4	11
357610	4.00	0.616	6.325	2.691	11
357765	4.00	0.61	6.325	2.37	11
355940	4.02	0.17	3.00	3.37	12
354340	4.03	0.64	6.325	2.68	12
355625	4.13	0.55	5.585	2.2	12
355022	4.47	0.47	5.42	3.08	12
354350	4.50	0.4	4.70	2.2	12
354996	4.50	0.30	3.00	3.46	12
355230	4.50	0.55	6.325	3.08	12
354453	4.60	0.5	6.00	2.7	12
354430	5.00	0.15	2.00	4.37	12
354105	5.50	0.6	7.20	3.7	12
354130	6.00	0.21	3.00	4.90	13
354550	6.10	0.18	2.79	4.87	13
354171	6.20	0.30	4.70	4.10	13
355110	6.20	0.4	7.20	3.5	13
354525	6.70	0.44	6.650	4.9	13
354115	6.80	0.5	9.20	4.3	13

Geltech Asphere Performance Parameters					
Lens Code	Focal Length (mm)	Numerical Aperture	Outer Diameter (mm)	Working Distance (mm)	Page
355375	7.50	0.3	6.51	5.8	13
354240	8.00	0.5	9.936	5.9	13
354060	9.60	0.30	6.325	8.13	13
354306	9.90	0.3	6.335	8.4	13
354125	10.00	0.5	11.00	7.8	14
355561	10.00	0.6	15.00	7.0	14
354220	11.00	0.3	7.20	7.9	14
354061	11.00	0.24	6.325	9.56	14
354062	11.00	0.24	6.00	9.66	14
354064	11.00	0.24	6.00	9.3	14
355397	11.00	0.3	7.20	10.0	14
354058	12.00	0.22	6.325	10.57	14
354057	13.00	0.20	6.325	11.58	14
354560	13.86	0.18	6.325	12.11	14
354059	14.00	0.19	6.325	12.63	15
354120	15.04	0.15	4.985	13.19	15
354260	15.29	0.16	6.50	13.98	15
354280	18.40	0.15	6.50	17.11	15
354850	22.00	0.13	6.325	20.41	15

PRODUCT DESCRIPTION



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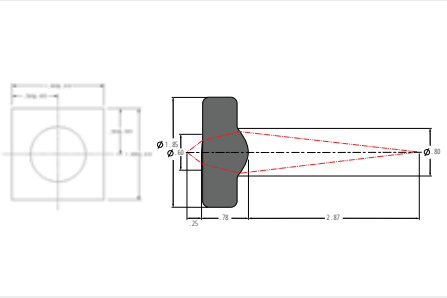
Clear Aperture	0.29/0.48



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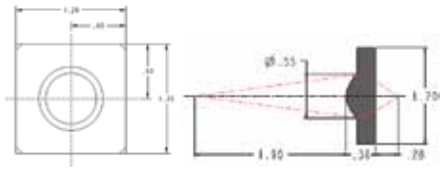
Clear Aperture	0.40/0.70



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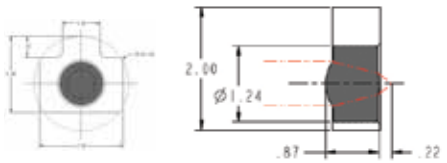
Clear Aperture	0.37/0.53



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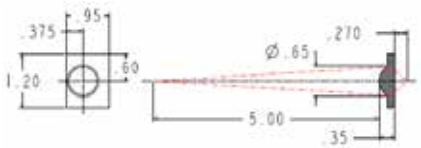
Clear Aperture	0.72/0.35



355070	
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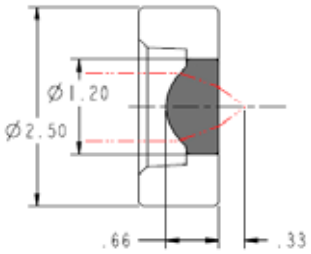
Clear Aperture	0.62/0.47



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Focal Length	0.70
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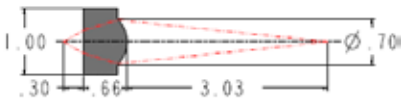
Clear Aperture	0.84/0.49



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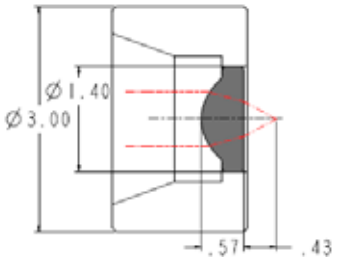
Clear Aperture	0.35/0.66



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Focal Length	0.75
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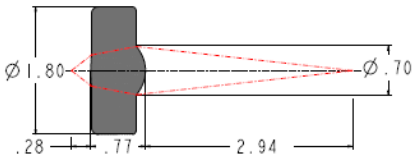
Clear Aperture	0.71/0.46



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Focal Length	0.55
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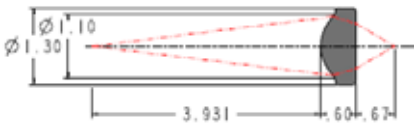
Clear Aperture	0.35/0.68



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Design Wavelength	1550
Focal Length	0.80
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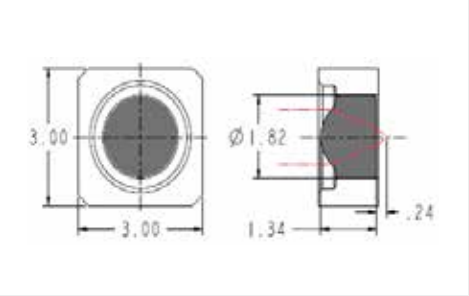
Clear Aperture	1.00/0.77



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Focal Length	1.00
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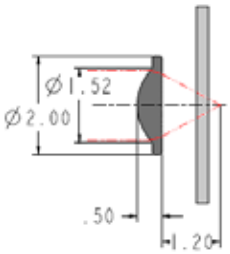
Clear Aperture	1.20/0.39



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Focal Length	1.41
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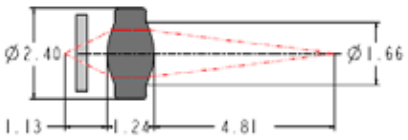
Clear Aperture	1.42/1.28



355200	
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Focal Length	1.14
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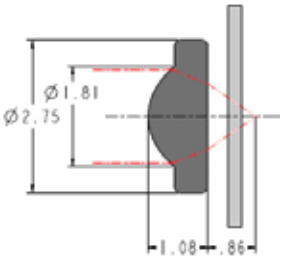
Clear Aperture	1.24/1.24



356785	
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Focal Length	1.42
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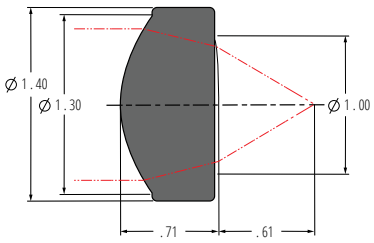
Clear Aperture	1.70/1.18



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Focal Length	1.05
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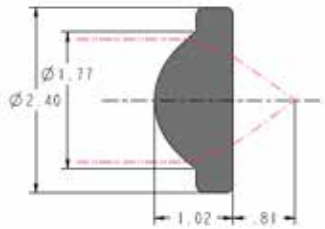
Clear Aperture	1.10/0.84



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Focal Length	1.45
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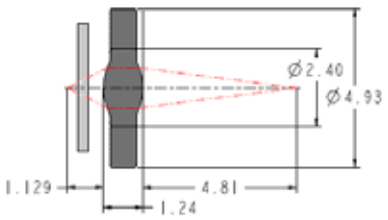
Clear Aperture	1.60/1.14



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Focal Length	1.14
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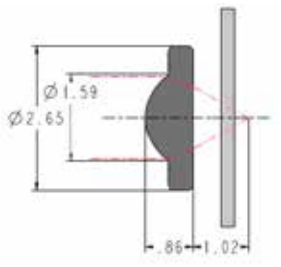
Clear Aperture	1.24/1.24



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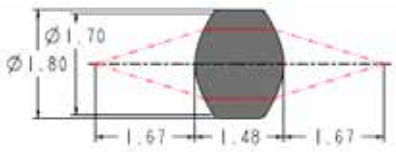
Focal Length	1.49
Numerical Aperture	0.53
Clear Aperture	1.50/1.15



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Focal Length	1.16
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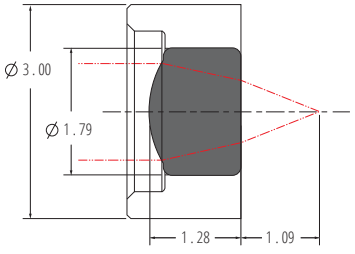
Clear Aperture	1.14/1.14



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Focal Length	1.8
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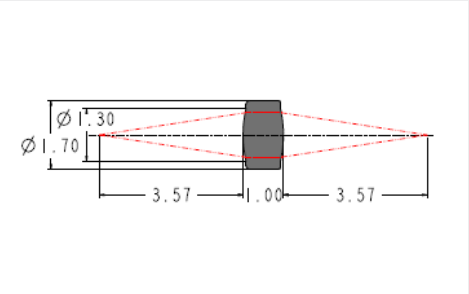
Clear Aperture	1.35/0.87



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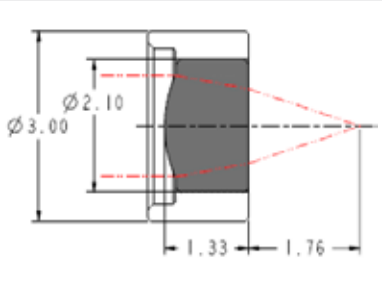
Clear Aperture	1.10/1.10



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Focal Length	2.51
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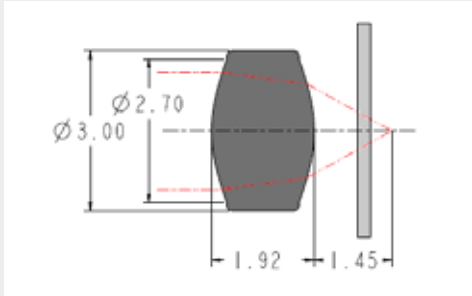
Clear Aperture	1.60/1.18



355150	
Design Wavelength	780
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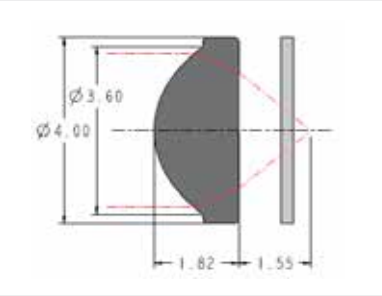
Clear Aperture	2.20/2.20



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Focal Length	2.54
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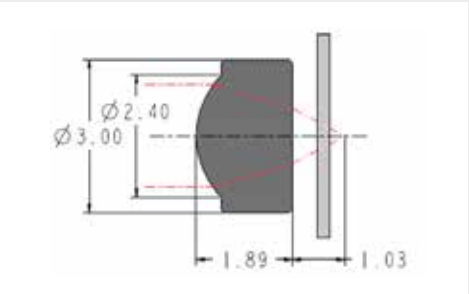
Clear Aperture	3.30/2.50



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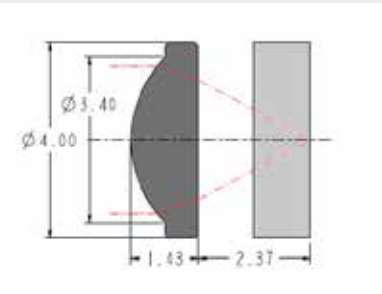
Design Wavelength	780
Focal Length	2.00
Numerical Aperture	0.504
Clear Aperture	2.00/1.09



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Focal Length	2.73
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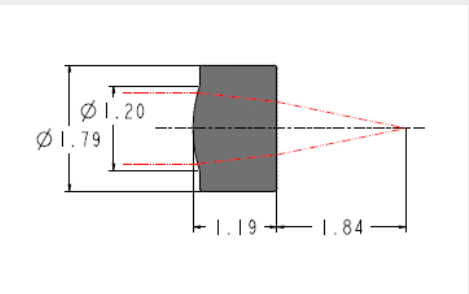
Clear Aperture	3.00/2.44



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Focal Length	2.51
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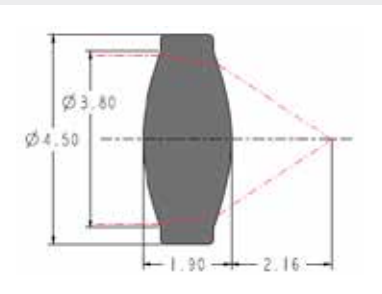
Clear Aperture	1.01/0.75



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Focal Length	2.75
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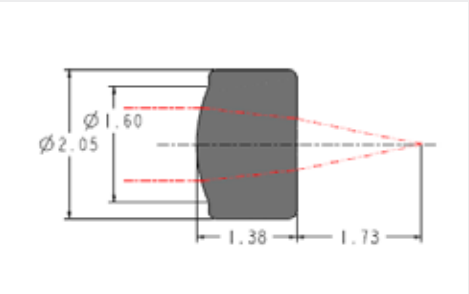
Clear Aperture	3.60/3.24



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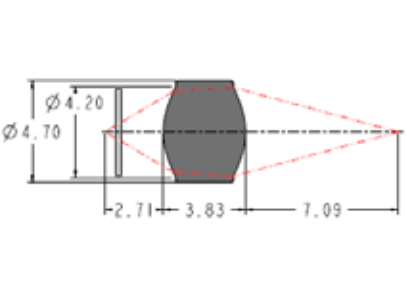
Focal Length	2.51
Numerical Aperture	0.201
Clear Aperture	1.01/0.71



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Focal Length	2.76
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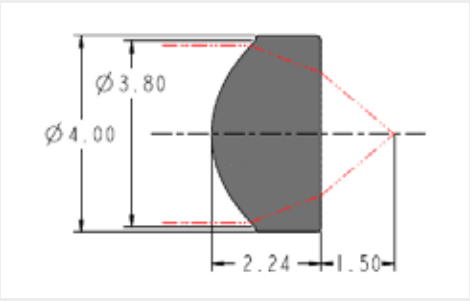
Clear Aperture	4.12/4.12



355392	
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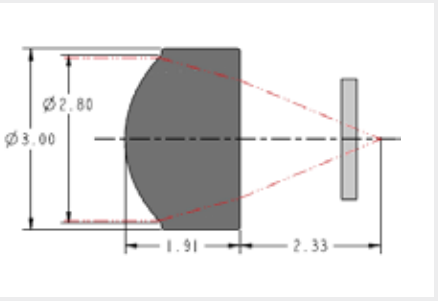
Focal Length	2.80
Numerical Aperture	0.6
Clear Aperture	3.60/2.50



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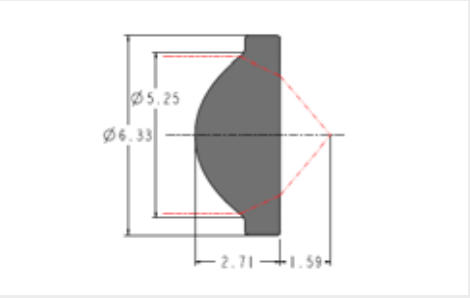
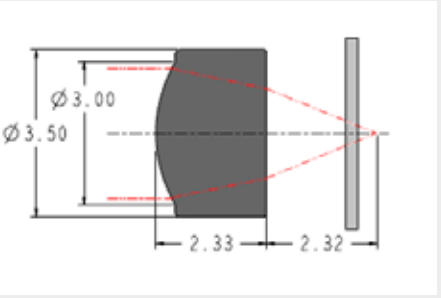
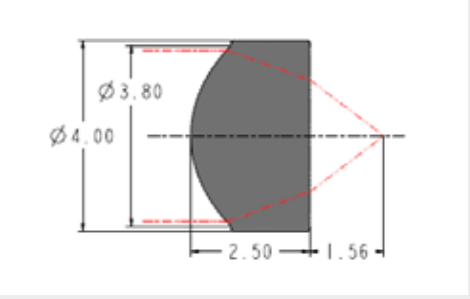
Focal Length	3.50
Numerical Aperture	0.4
Clear Aperture	2.70/1.95



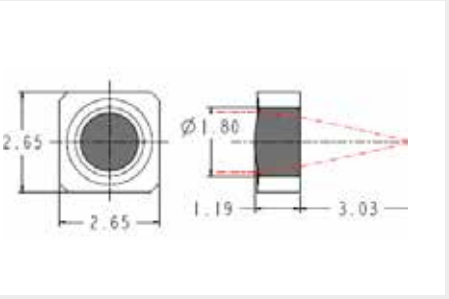
355330	
Design Wavelength	830
Focal Length	3.10
Numerical Aperture	0.77
Clear Aperture	5.00/3.79



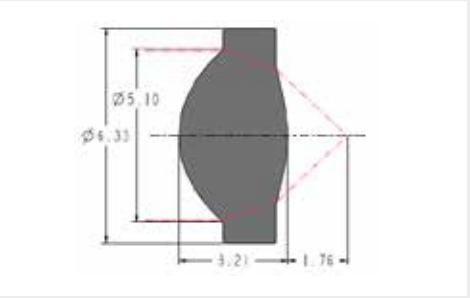
355545	
Design Wavelength	515
Focal Length	3.50
Numerical Aperture	0.38
Clear Aperture	2.71/1.88



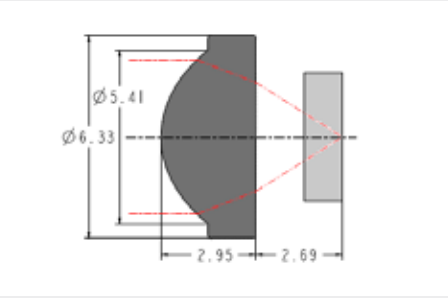
355660	
Design Wavelength	1550
Focal Length	2.976
Numerical Aperture	0.52
Clear Aperture	3.60/2.35



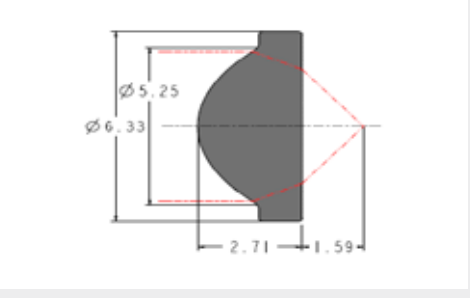
355970	
Design Wavelength	1550
Focal Length	3.70
Numerical Aperture	0.21
Clear Aperture	1.56/1.30



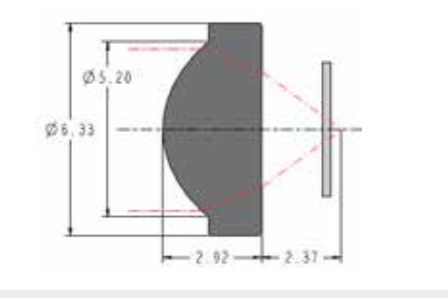
354330	
Design Wavelength	830
Focal Length	3.10
Numerical Aperture	0.7
Clear Aperture	5.00/3.84



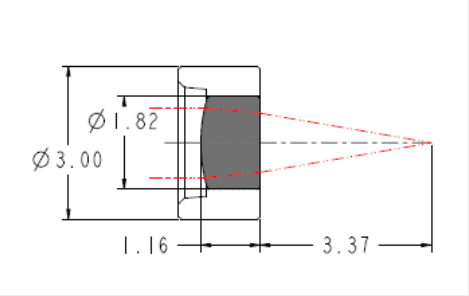
357610	
Design Wavelength	410
Focal Length	4.00
Numerical Aperture	0.616
Clear Aperture	4.80/3.39



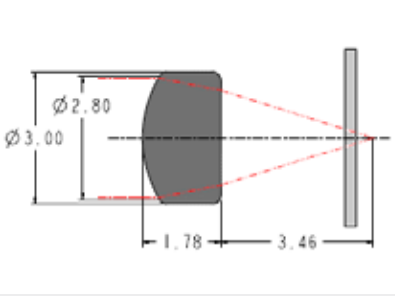
355330	
Design Wavelength	830
Focal Length	3.10
Numerical Aperture	0.77
Clear Aperture	5.00/3.61



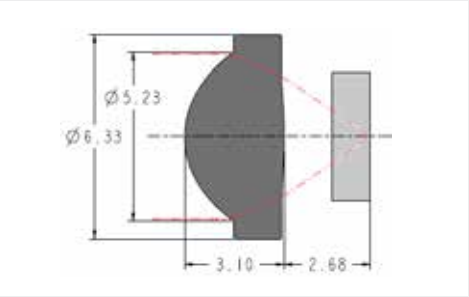
357765	
Design Wavelength	488
Focal Length	4.00
Numerical Aperture	0.61
Clear Aperture	4.80/3.43



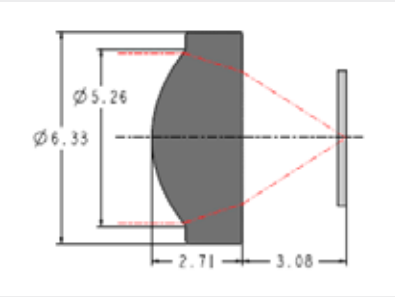
355940	
Design Wavelength	1550
Focal Length	4.02
Numerical Aperture	0.17
Clear Aperture	1.37/1.16



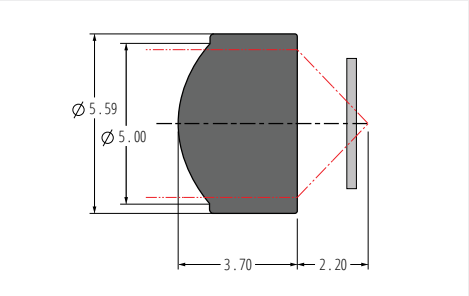
354996	
Design Wavelength	634
Focal Length	4.50
Numerical Aperture	0.30
Clear Aperture	2.70/2.15



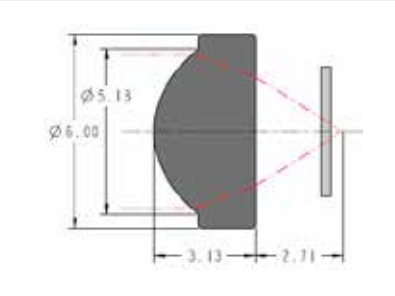
354340	
Design Wavelength	685
Focal Length	4.03
Numerical Aperture	0.64
Clear Aperture	5.10/3.77



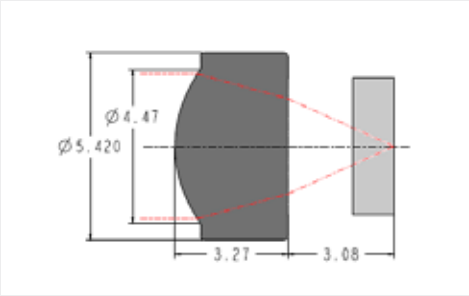
355230	
Design Wavelength	780
Focal Length	4.50
Numerical Aperture	0.55
Clear Aperture	5.07/3.93



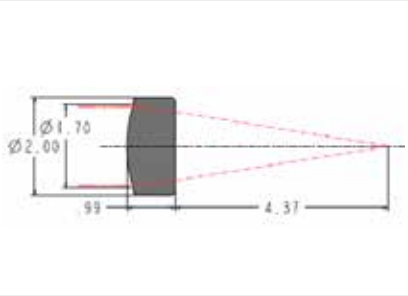
355625	
Design Wavelength	447
Focal Length	4.13
Numerical Aperture	0.55
Clear Aperture	4.60/4.60



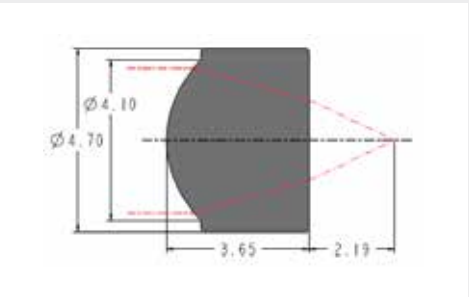
354453	
Design Wavelength	655
Focal Length	4.60
Numerical Aperture	0.5
Clear Aperture	4.80/3.38



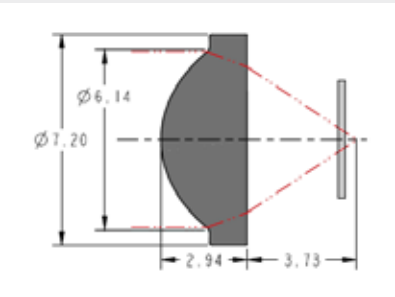
355022	
Design Wavelength	780
Focal Length	4.47
Numerical Aperture	0.47
Clear Aperture	4.20/2.77



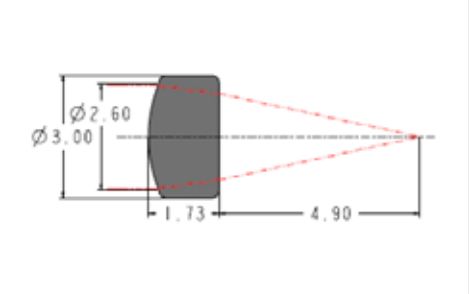
354430	
Design Wavelength	1550
Focal Length	5.00
Numerical Aperture	0.15
Clear Aperture	1.60/1.40



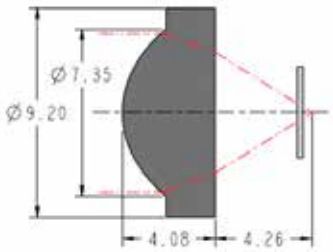
354350	
Design Wavelength	980
Focal Length	4.50
Numerical Aperture	0.4
Clear Aperture	3.70/2.05



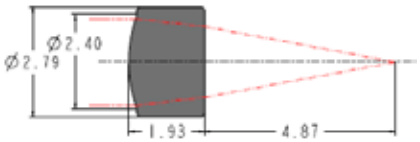
354105	
Design Wavelength	633
Focal Length	5.50
Numerical Aperture	0.6
Clear Aperture	6.00/4.96



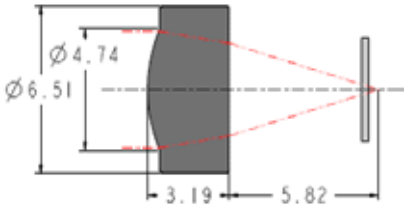
354130	
Design Wavelength	1550
Focal Length	6.00
Numerical Aperture	0.21
Clear Aperture	2.50/2.10



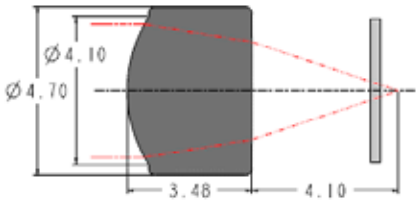
354115	
Design Wavelength	633
Focal Length	6.80
Numerical Aperture	0.5
Clear Aperture	7.00/5.30



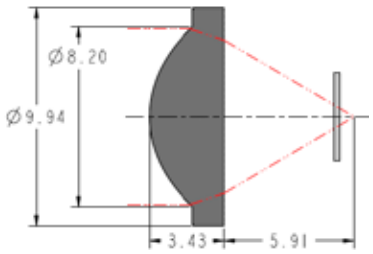
354550	
Design Wavelength	1550
Focal Length	6.10
Numerical Aperture	0.18
Clear Aperture	2.20/1.79



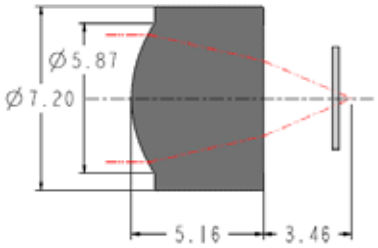
355375	
Design Wavelength	780
Focal Length	7.50
Numerical Aperture	0.3
Clear Aperture	4.54/3.61



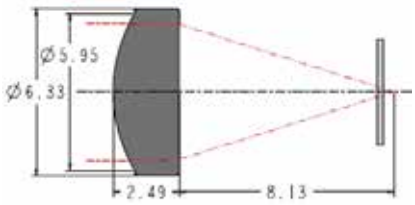
354171	
Design Wavelength	633
Focal Length	6.20
Numerical Aperture	0.30
Clear Aperture	3.70/2.72



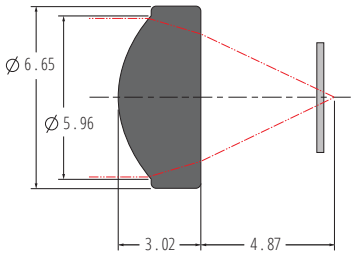
354240	
Design Wavelength	780
Focal Length	8.00
Numerical Aperture	0.5
Clear Aperture	8.00/6.94



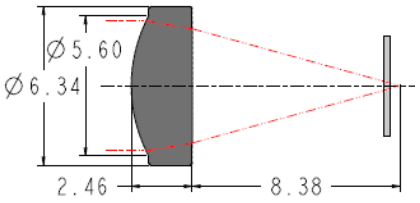
355110	
Design Wavelength	780
Focal Length	6.20
Numerical Aperture	0.4
Clear Aperture	5.00/2.93



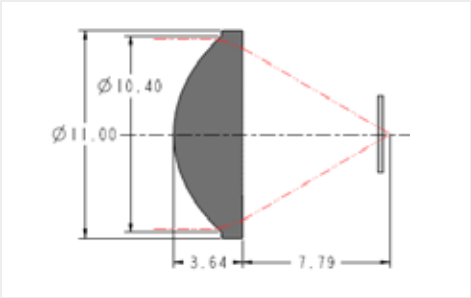
354060	
Design Wavelength	633
Focal Length	9.60
Numerical Aperture	0.30
Clear Aperture	5.20/5.13



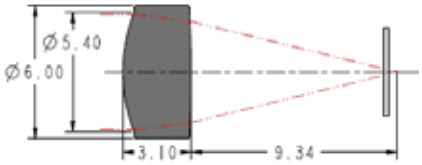
354525	
Design Wavelength	515
Focal Length	6.70
Numerical Aperture	0.44
Clear Aperture	5.75/4.66



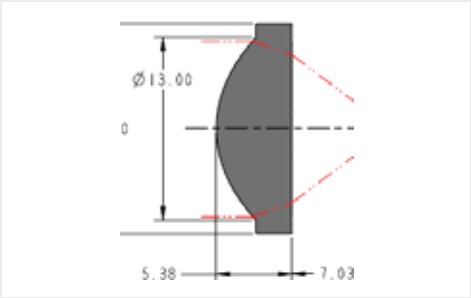
354306	
Design Wavelength	650
Focal Length	9.90
Numerical Aperture	0.3
Clear Aperture	5.20/4.57



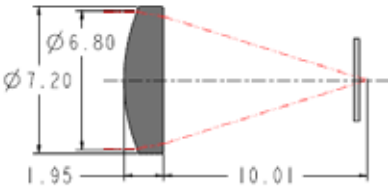
354125	
Design Wavelength	633
Focal Length	10.00
Numerical Aperture	0.5
Clear Aperture	10.00/9.12



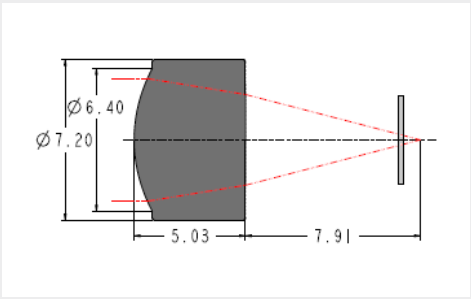
354064	
Design Wavelength	633
Focal Length	11.00
Numerical Aperture	0.24
Clear Aperture	5.20/4.59



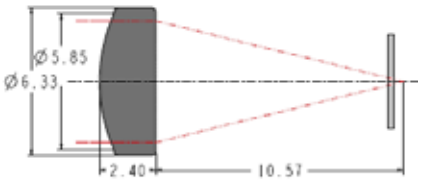
355561	
Design Wavelength	850
Focal Length	10.00
Numerical Aperture	0.6
Clear Aperture	12.50/10.53



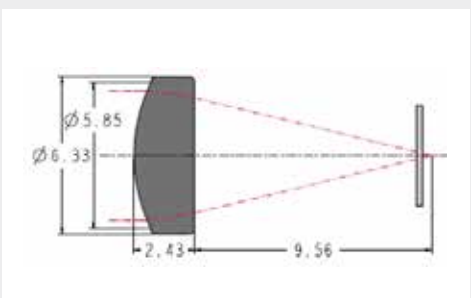
355397	
Design Wavelength	670
Focal Length	11.00
Numerical Aperture	0.3
Clear Aperture	6.68/6.24



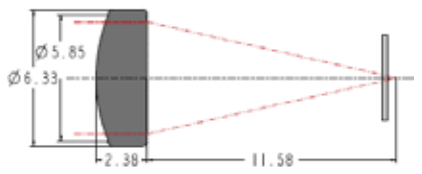
354220	
Design Wavelength	633
Focal Length	11.00
Numerical Aperture	0.3
Clear Aperture	5.50/4.07



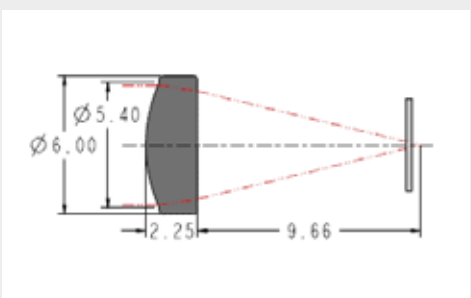
354058	
Design Wavelength	633
Focal Length	12.00
Numerical Aperture	0.22
Clear Aperture	5.20/5.20



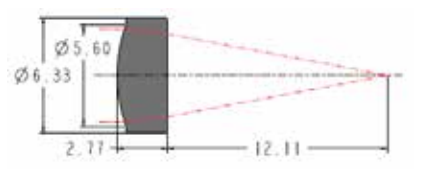
354061	
Design Wavelength	633
Focal Length	11.00
Numerical Aperture	0.24
Clear Aperture	5.20/4.63



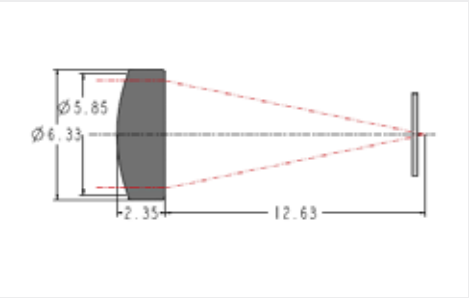
354057	
Design Wavelength	633
Focal Length	13.00
Numerical Aperture	0.20
Clear Aperture	5.20/5.20



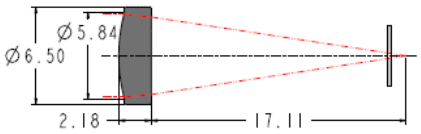
354062	
Design Wavelength	633
Focal Length	11.00
Numerical Aperture	0.24
Clear Aperture	5.20/4.68



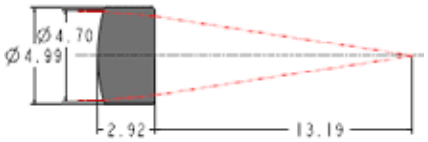
354560	
Design Wavelength	650
Focal Length	13.86
Numerical Aperture	0.18
Clear Aperture	5.10/4.54



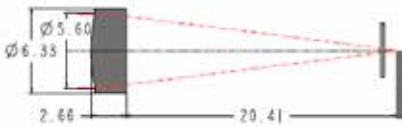
354059	
Design Wavelength	633
Focal Length	14.00
Numerical Aperture	0.19
Clear Aperture	5.20/5.20



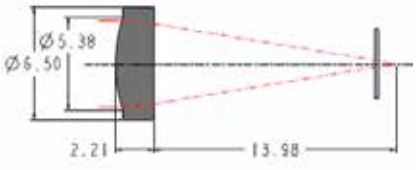
354280	
Design Wavelength	780
Focal Length	18.40
Numerical Aperture	0.15
Clear Aperture	5.50/5.15



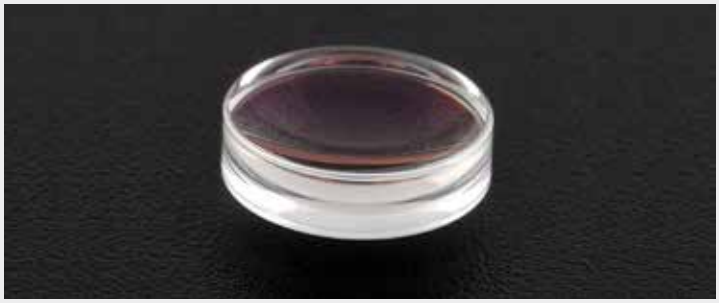
354120	
Design Wavelength	670
Focal Length	15.04
Numerical Aperture	0.15
Clear Aperture	4.50/4.00



354850	
Design Wavelength	670
Focal Length	22.00
Numerical Aperture	0.13
Clear Aperture	5.50/5.13



354260	
Design Wavelength	780
Focal Length	15.29
Numerical Aperture	.016
Clear Aperture	5.00/4.61



Infrared Laser Collimation Lenses

Part Number	Design Wavelength	Numerical Aperture	Clear Aperture	Effective Focal Length	Outer Diameter	Working Distance	Center Thickness
390036	2.5µm	0.56	5.0mm	4.0mm	6.5mm	3.05mm	2.50mm
390042	2.5µm	0.23	10.0mm	19.04mm	12.5mm	16.63mm	5.00mm
390017	2.7µm	0.72	2.6mm	1.50mm	3.5mm	1.24mm	1.10mm
390028	4.1µm	0.56	7.6mm	5.95mm	8.0mm	5.0mm	2.50mm
390029	4.2µm	0.86	2.5mm	0.91mm	3.0mm	0.66mm	0.90mm
390093	7.8µm	0.71	5.0mm	3.0mm	6.5mm	2.35mm	2.62mm
390010	9.2µm	0.83	3.0mm	1.47mm	4.5mm	0.63mm	2.18mm
390037	9.2µm	0.85	4.0mm	1.87mm	5.5mm	0.72mm	3.00mm

FusedSilica Aspheres

Fused silica lenses are available in three quality levels and optimized for multiple applications, as prototypes in test devices or as OEM-applications for beam-focusing or collimating. A selection of diameters is also obtainable with high-precision mountings.

NEW: All FusedSilica Aspheres are also available with special V-coatings

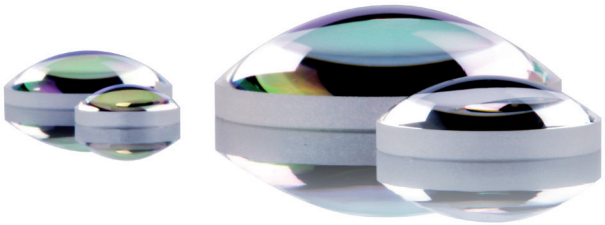
Key Benefits:

= Outstanding surface form deviation (quality levels: Precision, Ultra and BeamTuning)
= Suitable for high-power laser applications
= Laser induced damage threshold: 12 J/cm², 100 Hz, 6 ns, 532 nm
= Off-the-shelf delivery
= RoHS compliance

Coatings:

A: R_{MAX}< 1.0%, R_{AVG}≤ 0.4%, 400-600 nm, AOI=0°
B: R_{MAX}< 1.0%, R_{AVG}≤ 0.4%, 600-1050 nm, AOI=0°
C: R_{MAX}< 1.0%, R_{AVG}≤ 0.4%, 1000-1600 nm, AOI=0°
X: R_{MAX}< 1.0%, R_{AVG}≤ 0.4%, 240-380 nm, AOI=0°

NEW: V-coatings:
K: R < 0.25%, 355 nm, AOI=0°
L: R < 0.25%, 532 nm, AOI=0°
M: R < 0.25%, 1064 nm, AOI=0°



Unmounted Asphere

Mounted Asphere

Precision

Product Code	RMS_i	Wavefront RMS	Ø	EFL	NA	f/d	WD	λ_{Design}
	[µm]	[nm]	[mm]	[mm]			[mm]	[nm]
AFL12-10-P	≤0.5	≤ 235	12.5	10	0.58	0.833	5.7	355
AFL12-15-P	≤0.5	≤ 235	12.5	15	0.39	1.2	12.3	285
AFL12-20-P	≤0.5	≤ 235	12.5	20	0.29	1.6	17.3	285
AFL25-17-P	≤0.5	≤ 235	25	17	0.64	0.7	10.0	355
AFL25-20-P	≤0.5	≤ 235	25	20	0.56	0.8	12.6	355
AFL25-25-P	≤0.5	≤ 235	25	25	0.48	1.0	17.0	285
AFL25-30-P	≤0.5	≤ 235	25	30	0.39	1.2	23.3	285
AFL25-40-P	≤0.5	≤ 235	25	40	0.29	1.6	34.6	285
AFL25-50-P	≤0.5	≤ 235	25	50	0.23	2.0	45.1	355
AFL25-75-P	≤0.5	≤ 235	25	75	0.15	3.0	70.9	355
AFL25-100-P	≤0.5	≤ 235	25	100	0.11	4.0	96.3	355
AFL50-40-P	≤0.5	≤ 235	50	40	0.56	0.8	25.2	355
AFL50-50-P	≤0.5	≤ 235	50	50	0.48	1.0	37.0	355
AFL50-60-P	≤0.5	≤ 235	50	60	0.39	1.2	48.3	285
AFL50-80-P	≤0.5	≤ 235	50	80	0.29	1.6	70.6	285
AFL50-100-P	≤0.5	≤ 235	50	100	0.23	2.0	91.5	355

Ultra

Product Code	RMS_i	Wavefront RMS	Ø	EFL	NA	f/d	WD	λ_{Design}
	[µm]	[nm]	[mm]	[mm]			[mm]	[nm]
AFL12-10-U	≤0.3	≤140	12.5	10	0.58	0.833	5.7	355
AFL12-15-U	≤0.3	≤140	12.5	15	0.39	1.2	12.3	285
AFL12-20-U	≤0.3	≤140	12.5	20	0.29	1.6	17.3	285
AFL25-17-U	≤0.3	≤140	25	17	0.64	0.7	10.0	355
AFL25-20-U	≤0.3	≤140	25	20	0.56	0.8	12.6	355
AFL25-25-U	≤0.3	≤140	25	25	0.48	1.0	17.0	285
AFL25-30-U	≤0.3	≤140	25	30	0.39	1.2	23.3	285
AFL25-40-U	≤0.3	≤140	25	40	0.29	1.6	34.6	285
AFL25-50-U	≤0.3	≤140	25	50	0.23	2.0	45.1	355
AFL25-75-U	≤0.3	≤140	25	75	0.15	3.0	70.9	355
AFL25-100-U	≤0.3	≤140	25	100	0.11	4.0	96.3	355
AFL50-40-U	≤0.3	≤140	50	40	0.56	0.8	25.2	355
AFL50-50-U	≤0.3	≤140	50	50	0.48	1.0	37.0	355
AFL50-60-U	≤0.3	≤140	50	60	0.39	1.2	48.3	285
AFL50-80-U	≤0.3	≤140	50	80	0.29	1.6	70.6	285
AFL50-100-U	≤0.3	≤140	50	100	0.23	2.0	91.5	355

BeamTuning

Product Code	RMS_i	Wavefront RMS	Ø	EFL	NA	f/d	WD	λ_{Design}
	[µm]	[nm]	[mm]	[mm]			[mm]	[nm]
AFL25-50-D	0.02	≤10	25	50	0.23	2.0	45.1	355
AFL25-75-D	0.02	≤10	25	75	0.15	3.0	70.9	355
AFL25-100-D	0.02	≤10	25	100	0.11	4.0	96.3	355

Custom coatings available upon request. | RMSi corresponds to ISO 10110-5 (surface form tolerances). | Typically used J-Fiber SQ 1 or equivalent corning 7980 quality. | General: Technical parameters and prices are subject to change without prior notice.

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