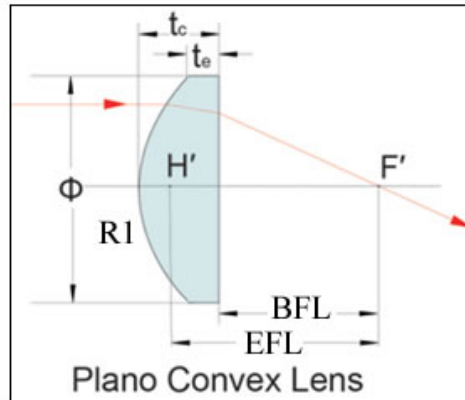
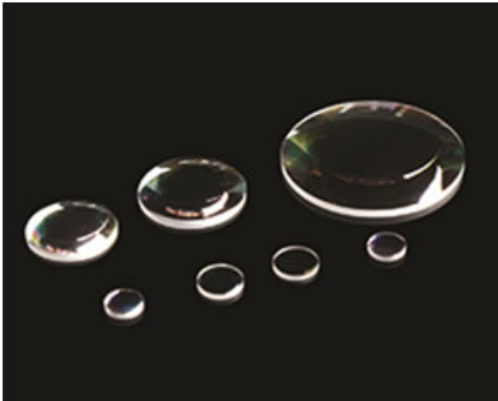


Laser Optical Lenses

1. BK7 Plano-Convex Lens

The BK7 plano-convex lenses are available in a variety of laser lines. We can offer laser anti-reflection coatings with different wavelengths including 405nm, 468nm, 532nm, 650nm, 808nm, 980nm, 1064nm, 1319nm, and 1550nm. Designed with high light transmission rate at the specified laser wavelength, our lens is ideally used in Ne-He or Nd:YAG laser systems. With a maximum reflectivity of less than 0.25% per surface at the design wavelength, it is able to achieve superior light transmission through integrating with multiple optical components. We can offer as many as thousands of ready-made radius of curvatures. Custom-design and –fabrication available upon request.



Material: BK7
 Diameter Tolerance: +0/-0.1mm
 Thickness Tolerance: ±0.2mm
 Flatness: $\lambda/4$ @632.8nm
 Clear Aperture: 90%
 Focal Length Tolerance: +/-1%
 Surface Quality: 40-20
 Bevel: <0.25mm x 45 °
 Design Wavelength: 587.6nm
 Centration: 3 arc min

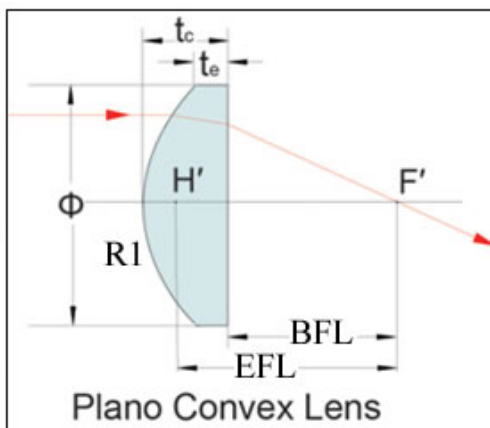
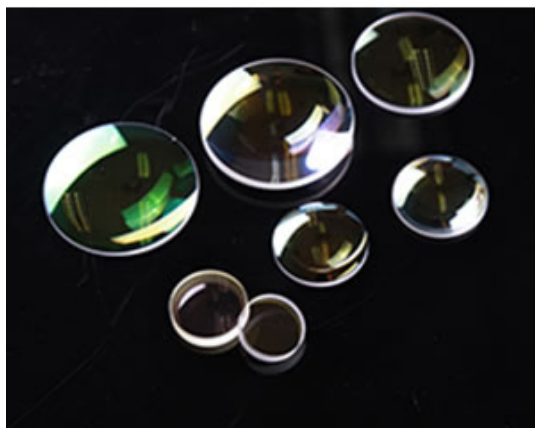
In the following tables, we will use the abbreviations: OD means outside diameter, EFL means effective focal length, BFL means back focal length, R1 and R2 means radius, TC means center thickness, TE means edge thickness. All dimensions are in mm. In “Part Number”, XXXX means laser wavelength in nm.

Part No.	OD	EFL	BFL	R1	TC	TE
STJ-XXXX-L4B-06-010	6	10	8.02	5.16	3.00	2.04
STJ-XXXX-L4B-06-015	6	15	13.02	7.76	3.00	2.40
STJ-XXXX-L4B-06-020	6	20	18.04	10.43	3.00	2.56
STJ-XXXX-L4B-06-025	6	25	23.02	12.90	3.00	2.65
STJ-XXXX-L4B-06-030	6	30	28.02	15.50	3.00	2.71
STJ-XXXX-L4B-06-036	6	36	34.02	18.62	3.00	2.76
STJ-XXXX-L4B-06-048	6	48	46.02	24.82	3.00	2.82
STJ-XXXX-L4B-06-060	6	60	58.02	31.01	3.00	2.85
STJ-XXXX-L4B-10-015	10	15	12.37	7.76	4.00	2.18
STJ-XXXX-L4B-10-020	10	20	17.71	10.43	3.50	2.22
STJ-XXXX-L4B-10-025	10	25	22.69	12.90	3.50	2.49
STJ-XXXX-L4B-10-030	10	30	28.02	15.50	3.00	2.17
STJ-XXXX-L4B-10-040	10	40	38.02	20.70	3.00	2.39
STJ-XXXX-L4B-10-050	10	50	48.35	25.84	2.50	2.01
STJ-XXXX-L4B-10-075	10	75	73.35	38.73	2.50	2.18
STJ-XXXX-L4B-15-020	15	20	16.41	10.43	5.50	2.32
STJ-XXXX-L4B-15-025	15	25	21.70	12.90	5.00	2.60
STJ-XXXX-L4B-15-030	15	30	27.03	15.50	4.50	2.56

STJ-XXXX-L4B-15-040	15	40	37.37	20.70	4.00	2.59
STJ-XXXX-L4B-15-060	15	60	57.70	31.14	3.50	2.58
STJ-XXXX-L4B-20-030	20	30	26.04	15.50	6.00	2.34
STJ-XXXX-L4B-20-040	20	40	36.71	20.70	5.00	2.42
STJ-XXXX-L4B-20-050	20	50	47.03	25.84	4.50	2.49
STJ-XXXX-L4B-20-080	20	80	77.69	41.34	3.50	2.27
STJ-XXXX-L4B-25-030	25	30	24.39	15.50	8.50	2.17
STJ-XXXX-L4B-25-040	25	40	35.72	20.70	6.50	2.30
STJ-XXXX-L4B-25-050	25	50	46.37	25.84	5.50	2.28
STJ-XXXX-L4B-25-070	25	70	67.03	36.14	4.50	2.27
STJ-XXXX-L4B-25-100	25	100	97.36	51.69	4.00	2.47
STJ-XXXX-L4B-25-150	25	150	147.69	77.52	3.50	2.49
STJ-XXXX-L4B-30-040	30	40	34.40	20.70	8.50	2.06
STJ-XXXX-L4B-30-050	30	50	45.39	25.84	7.00	2.20
STJ-XXXX-L4B-30-070	30	70	66.04	36.14	6.00	2.74
STJ-XXXX-L4B-30-100	30	100	96.70	51.69	5.00	2.78
STJ-XXXX-L4B-30-150	30	150	147.36	77.52	4.00	2.53
STJ-XXXX-L4B-30-180	30	180	177.69	93.02	3.50	2.28
STJ-XXXX-L4B-36-050	36	50	43.74	25.84	9.50	2.20
STJ-XXXX-L4B-36-080	36	80	75.38	41.34	7.00	2.88
STJ-XXXX-L4B-36-100	36	100	96.05	51.69	6.00	2.76
STJ-XXXX-L4B-36-120	36	120	116.70	62.00	5.00	2.33
STJ-XXXX-L4B-36-150	36	150	147.03	77.52	4.50	2.38
STJ-XXXX-L4B-36-180	36	180	177.36	93.02	4.00	2.24
STJ-XXXX-L4B-36-220	36	220	217.37	113.83	4.00	2.57
STJ-XXXX-L4B-40-040	40	50	42.42	25.84	11.50	2.02
STJ-XXXX-L4B-40-080	40	80	75.05	41.34	7.50	2.34
STJ-XXXX-L4B-40-100	40	100	95.72	51.69	6.50	2.47
STJ-XXXX-L4B-40-120	40	120	116.04	62.00	6.00	2.69
STJ-XXXX-L4B-40-150	40	150	146.70	77.52	5.00	2.38
STJ-XXXX-L4B-40-180	40	180	177.03	93.02	4.50	2.32
STJ-XXXX-L4B-40-220	40	220	217.37	113.83	4.00	2.23
STJ-XXXX-L4B-42-060	42	60	52.78	31.14	11.00	2.85
STJ-XXXX-L4B-42-080	42	80	74.40	41.34	8.50	2.77
STJ-XXXX-L4B-42-100	42	100	95.39	51.69	7.00	2.54
STJ-XXXX-L4B-42-120	42	120	116.04	62.00	6.00	2.34
STJ-XXXX-L4B-42-180	42	180	175.65	77.52	5.50	2.60
STJ-XXXX-L4B-42-220	42	220	215.97	93.02	5.00	2.60
STJ-XXXX-L4B-42-300	42	300	295.96	113.83	4.50	2.55
STJ-XXXX-L4B-50-075	50	75	67.41	38.73	11.50	2.35
STJ-XXXX-L4B-50-100	50	100	94.07	51.69	9.00	2.55
STJ-XXXX-L4B-50-125	50	125	120.06	64.60	7.50	2.47
STJ-XXXX-L4B-50-150	50	150	145.39	77.52	7.00	2.86
STJ-XXXX-L4B-50-175	50	175	171.04	90.44	6.00	2.48
STJ-XXXX-L4B-50-220	50	220	216.38	113.83	5.50	2.72
STJ-XXXX-L4B-50-300	50	300	297.03	155.04	4.50	2.47
STJ-XXXX-L4B-50-400	50	400	397.36	206.67	4.00	2.48

2. Fused Silica Plano-Convex Lens

Our plano-convex lenses are made from UV-grade fused silica, giving outstanding thermal properties, exceptional purity, and excellent environmental durability. We offer anti-reflection coatings with different wavelengths such as 405nm, 468nm, 532nm, 650nm, 808nm, 980nm, 1064nm, 1319nm, 1550nm, and more. It is especially suitable the use in He-Ne, Diode, and Nd:YAG laser systems due to its design of maximum light transmission at the specified laser wavelength. Through combining multiple optical parts, our lens with a maximum reflectivity of less than 0.25% per surface will give superior light transmission. Like our other products, we can supply as many as thousands of ready-made radius of curvatures.



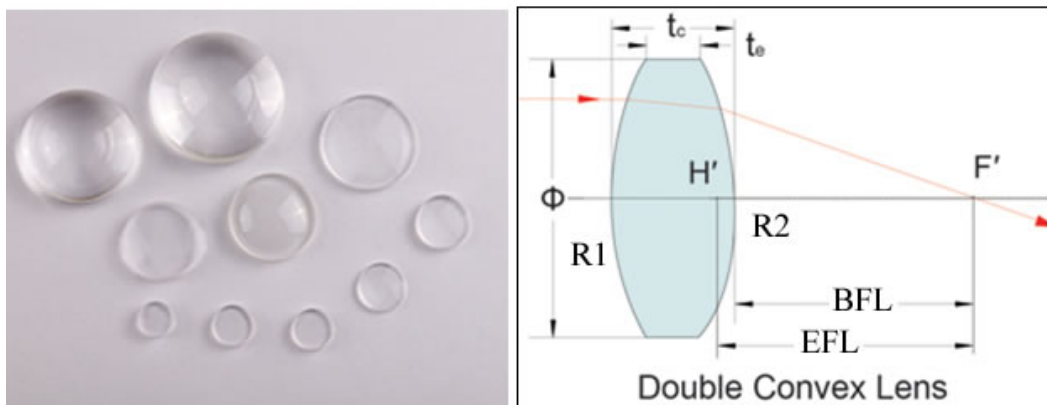
Material: UV Grade Fused Silica
 Diameter Tolerance: +0/-0.1mm
 Thickness Tolerance: ±0.2mm
 Flatness: $\lambda/4$ @632.8nm
 Clear Aperture: 90%
 Focal Length Tolerance: +/-1%
 Surface Quality: 40-20
 Bevel: <0.25mm x 45 °
 Design Wavelength: 587.6nm
 Centration: 3 arc min

Part No.	OD	EFL	BFL	R1	TC	TE
STJ-XXXX-L4J-06-010	6	10	7.62	4.61	3.50	2.39
STJ-XXXX-L4J-06-015	6	15	12.94	6.86	3.00	2.31
STJ-XXXX-L4J-06-020	6	20	17.95	9.19	3.00	2.50
STJ-XXXX-L4J-06-025	6	25	22.95	11.48	3.00	2.60
STJ-XXXX-L4J-06-030	6	30	27.94	13.76	3.00	2.67
STJ-XXXX-L4J-06-036	6	36	33.95	16.52	3.00	2.73
STJ-XXXX-L4J-06-048	6	48	45.95	22.03	3.00	2.79
STJ-XXXX-L4J-06-060	6	60	58.29	27.54	2.50	2.34
STJ-XXXX-L4J-10-015	10	15	11.91	6.86	4.50	2.34
STJ-XXXX-L4J-10-020	10	20	17.26	9.19	4.00	2.52
STJ-XXXX-L4J-10-025	10	25	22.60	11.48	3.50	2.35
STJ-XXXX-L4J-10-030	10	30	27.61	13.76	3.50	2.56
STJ-XXXX-L4J-10-040	10	40	37.94	18.33	3.00	2.31
STJ-XXXX-L4J-10-050	10	50	47.95	22.98	3.00	2.45
STJ-XXXX-L4J-10-075	10	75	72.94	34.36	3.00	2.63
STJ-XXXX-L4J-15-020	15	20	15.55	9.19	6.50	2.62
STJ-XXXX-L4J-15-025	15	25	21.23	11.48	5.50	2.71
STJ-XXXX-L4J-15-030	15	30	26.57	13.76	5.00	2.78
STJ-XXXX-L4J-15-040	15	40	37.26	18.33	4.00	2.40
STJ-XXXX-L4J-15-060	15	60	57.60	27.54	3.50	2.46
STJ-XXXX-L4J-20-030	20	30	25.20	13.76	7.00	2.69
STJ-XXXX-L4J-20-035	20	35	30.89	16.05	6.00	2.50
STJ-XXXX-L4J-20-040	20	40	36.23	18.33	5.50	2.53
STJ-XXXX-L4J-20-050	20	50	46.58	22.98	5.00	2.71
STJ-XXXX-L4J-20-080	20	80	77.25	36.64	4.00	2.61
STJ-XXXX-L4J-25-030	25	30	22.80	13.76	10.50	2.49
STJ-XXXX-L4J-25-040	25	40	34.86	18.33	7.50	2.58
STJ-XXXX-L4J-25-050	25	50	45.90	22.98	6.00	2.31
STJ-XXXX-L4J-25-070	25	70	66.58	32.14	5.00	2.47
STJ-XXXX-L4J-25-100	25	100	96.92	45.85	4.50	2.76
STJ-XXXX-L4J-25-150	25	150	147.61	68.80	3.50	2.35
STJ-XXXX-L4J-30-040	30	40	33.14	18.33	10.00	2.21
STJ-XXXX-L4J-30-050	30	50	44.53	22.98	8.00	2.43
STJ-XXXX-L4J-30-070	30	70	65.89	32.14	6.00	2.28

STJ-XXXX-L4J-30-100	30	100	96.57	45.85	5.00	2.48
STJ-XXXX-L4J-30-150	30	150	147.26	68.80	4.00	2.34
STJ-XXXX-L4J-30-180	30	180	177.26	82.53	4.00	2.63
STJ-XXXX-L4J-36-050	36	50	42.48	22.98	11.00	2.30
STJ-XXXX-L4J-36-080	36	80	74.99	36.64	7.30	2.57
STJ-XXXX-L4J-36-100	36	100	95.89	45.85	6.00	2.32
STJ-XXXX-L4J-36-120	36	120	116.23	55.00	5.50	2.47
STJ-XXXX-L4J-36-150	36	150	146.57	68.80	5.00	2.60
STJ-XXXX-L4J-36-180	36	180	176.92	82.53	4.50	2.51
STJ-XXXX-L4J-36-220	36	220	217.26	100.89	4.00	2.38
STJ-XXXX-L4J-40-050	40	50	40.42	22.98	14.00	2.33
STJ-XXXX-L4J-40-080	40	80	74.17	36.64	8.50	2.56
STJ-XXXX-L4J-40-100	40	100	95.21	45.85	7.00	2.41
STJ-XXXX-L4J-40-120	40	120	115.89	55.00	6.00	2.23
STJ-XXXX-L4J-40-150	40	150	146.23	68.80	5.50	2.53
STJ-XXXX-L4J-40-180	40	180	176.57	82.53	5.00	2.54
STJ-XXXX-L4J-40-220	40	220	216.92	100.89	4.50	2.50
STJ-XXXX-L4J-42-080	42	80	73.82	36.64	9.00	2.38
STJ-XXXX-L4J-42-100	42	100	94.79	45.85	7.60	2.51
STJ-XXXX-L4J-42-120	42	120	115.20	55.00	7.00	2.83
STJ-XXXX-L4J-42-150	42	150	145.89	68.80	6.00	2.72
STJ-XXXX-L4J-42-180	42	180	176.57	82.53	5.00	2.28
STJ-XXXX-L4J-42-220	42	220	216.85	100.89	4.60	2.39
STJ-XXXX-L4J-42-300	42	300	297.26	137.72	4.00	2.39
STJ-XXXX-L4J-50-125	50	125	119.17	57.31	8.50	2.76
STJ-XXXX-L4J-50-150	50	150	145.20	68.80	7.00	2.30
STJ-XXXX-L4J-50-175	50	175	170.54	80.25	6.50	2.51
STJ-XXXX-L4J-50-220	50	220	215.89	100.89	6.00	2.85
STJ-XXXX-L4J-50-300	50	300	296.58	137.72	5.00	2.71
STJ-XXXX-L4J-50-400	50	400	397.26	183.68	4.00	2.29

3. BK7 Double Convex Lens

The BK7 double-convex lens can be used in many aspects such as laser and imaging. It has two outwardly curved surfaces with equal curvature and a positive focal length, suitable for 1:1 imaging and multi elements systems. Thousands of ready-made radiuses of curvature models are available for selection.



Material: BK7
Diameter Tolerance: +0/-0.1mm
Thickness Tolerance: ±0.2mm
Flatness: $\lambda/4$ @632.8nm
Clear Aperture: 90%
Focal Length Tolerance: +/-1%
Surface Quality: 40-20
Bevel: <0.25mm x 45 °

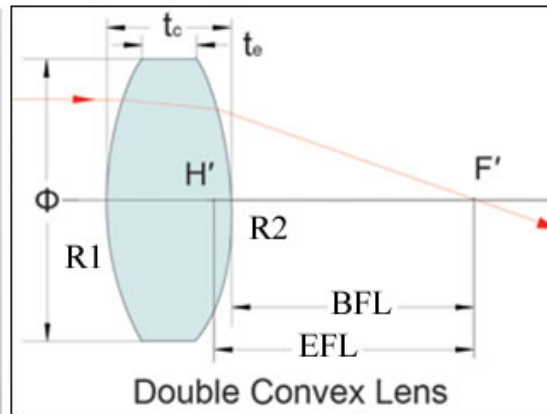
Design Wavelength: 587.6nm

Centration: 3 arc min

Part No.	OD	EFL	BFL	R1=R2	TC	TE
STJ-XXXX-L2B-06-012	6	12	11.22	12.00	2.30	1.54
STJ-XXXX-L2B-06-018	6	18	17.19	18.19	2.40	1.90
STJ-XXXX-L2B-06-024	6	24	23.20	24.39	2.40	2.03
STJ-XXXX-L2B-06-030	6	30	29.16	30.58	2.50	2.20
STJ-XXXX-L2B-06-036	6	36	35.30	36.85	2.10	1.86
STJ-XXXX-L2B-10-015	10	15	13.62	14.79	4.00	2.26
STJ-XXXX-L2B-10-020	10	20	18.81	20.06	3.50	2.23
STJ-XXXX-L2B-10-030	10	30	28.82	30.40	3.50	2.67
STJ-XXXX-L2B-10-040	10	40	39.20	40.93	2.40	1.79
STJ-XXXX-L2B-10-050	10	50	49.10	51.22	2.70	2.21
STJ-XXXX-L2B-10-080	10	80	78.97	82.16	3.10	2.80
STJ-XXXX-L2B-15-025	15	25	23.50	25.07	4.40	2.10
STJ-XXXX-L2B-15-030	15	30	28.65	30.31	4.00	2.11
STJ-XXXX-L2B-15-040	15	40	38.78	40.71	3.65	2.26
STJ-XXXX-L2B-15-060	15	60	58.90	61.45	3.30	2.38
STJ-XXXX-L2B-15-080	15	80	78.97	82.16	3.10	2.41
STJ-XXXX-L2B-15-100	15	100	98.92	102.80	3.25	2.70
STJ-XXXX-L2B-20-030	20	30	28.16	30.06	5.40	1.98
STJ-XXXX-L2B-20-040	20	40	38.49	40.56	4.50	2.00
STJ-XXXX-L2B-20-055	20	55	53.93	56.30	3.20	1.41
STJ-XXXX-L2B-20-070	20	70	68.64	71.65	4.10	2.70
STJ-XXXX-L2B-20-080	20	80	78.97	82.16	3.10	1.88
STJ-XXXX-L2B-20-100	20	100	98.92	102.80	3.25	2.27
STJ-XXXX-L2B-30-040	30	40	37.39	40.00	7.65	1.81
STJ-XXXX-L2B-30-055	30	55	52.92	55.77	6.20	2.09
STJ-XXXX-L2B-30-070	30	70	67.94	71.29	6.15	2.96
STJ-XXXX-L2B-30-080	30	80	78.01	81.66	5.95	3.17
STJ-XXXX-L2B-30-100	30	100	98.47	102.57	4.60	2.39
STJ-XXXX-L2B-30-120	30	120	118.37	123.19	4.90	3.07
STJ-XXXX-L2B-40-060	40	60	57.13	60.53	8.50	1.70
STJ-XXXX-L2B-40-080	40	80	77.52	81.41	7.40	2.41
STJ-XXXX-L2B-40-100	40	100	97.55	102.09	7.35	3.39
STJ-XXXX-L2B-40-150	40	150	148.31	154.17	5.10	2.49
STJ-XXXX-L2B-40-200	40	200	198.30	205.84	5.15	3.20
STJ-XXXX-L2B-40-300	40	300	298.33	309.22	5.05	3.76
STJ-XXXX-L2B-50-080	50	80	76.20	80.72	11.25	3.31
STJ-XXXX-L2B-50-120	50	120	117.48	122.73	7.55	2.40
STJ-XXXX-L2B-50-180	50	180	178.36	185.20	4.95	1.56
STJ-XXXX-L2B-50-250	50	250	248.18	257.46	5.50	3.07
STJ-XXXX-L2B-50-300	50	300	298.33	309.22	5.05	3.03

4. Fused Silica Double Convex Lens

Exquisitely manufactured from UV-grade synthetic fused silica, this fused double convex lens comes with outstanding thermal properties, exceptional purity, and excellent environmental durability. Also, it exhibits outstanding transmission property over the ultraviolet waveband, suitable for laser and imaging system.



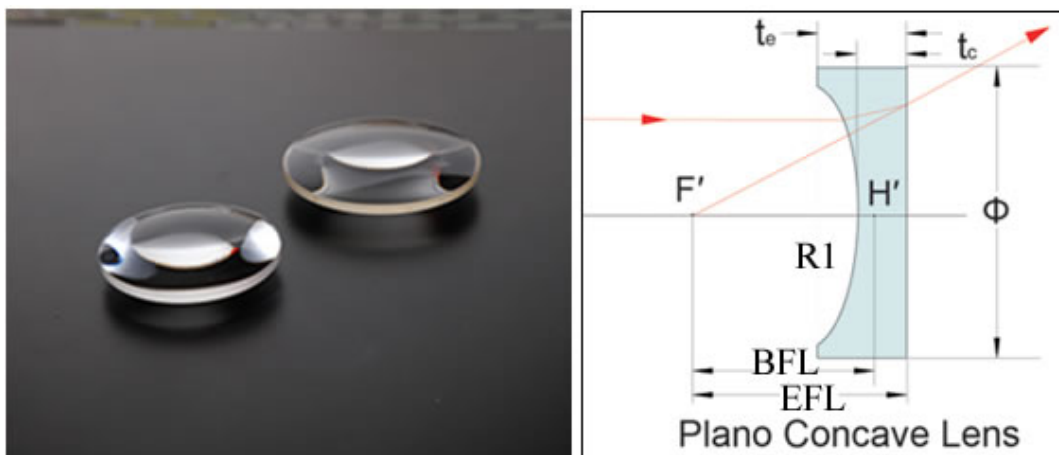
Material: UV Grade Fused Silica
 Diameter Tolerance: +0/-0.1mm
 Thickness Tolerance: ±0.2mm
 Flatness: $\lambda/4$ @632.8nm
 Clear Aperture: 90%
 Focal Length Tolerance: +/-1%
 Surface Quality: 40-20
 Bevel: <0.25mm x 45 °
 Design Wavelength: 587.6nm
 Centration: 3 arc min

Part No.	OD	EFL	BFL	R1=R2	TC	TE
STJ-XXXX-L2J-06-011	6	12	10.96	10.53	2.90	2.03
STJ-XXXX-L2J-06-018	6	18	17.01	16.05	2.80	2.23
STJ-XXXX-L2J-06-024	6	24	23.14	21.61	2.45	2.03
STJ-XXXX-L2J-06-030	6	30	29.29	27.18	2.05	1.72
STJ-XXXX-L2J-10-015	10	15	13.71	13.16	3.60	1.63
STJ-XXXX-L2J-10-020	10	20	18.61	17.70	3.90	2.46
STJ-XXXX-L2J-10-030	10	30	28.90	27.00	3.15	2.22
STJ-XXXX-L2J-10-040	10	40	39.05	36.23	2.75	2.06
STJ-XXXX-L2J-12-020	12	20	18.48	17.64	4.27	2.17
STJ-XXXX-L2J-12-025	12	25	23.61	22.28	3.95	2.30
STJ-XXXX-L2J-12-030	12	30	28.90	27.00	3.15	1.80
STJ-XXXX-L2J-12-040	12	40	39.03	36.23	2.80	1.80
STJ-XXXX-L2J-15-020	15	20	18.09	17.46	5.30	1.91
STJ-XXXX-L2J-15-025	15	25	23.33	22.16	4.70	2.08
STJ-XXXX-L2J-15-030	15	30	28.56	26.84	4.10	1.96
STJ-XXXX-L2J-15-040	15	40	38.75	36.10	3.60	2.02
STJ-XXXX-L2J-15-050	15	50	48.89	45.33	3.20	1.95
STJ-XXXX-L2J-20-025	20	25	22.22	21.65	7.65	2.75
STJ-XXXX-L2J-20-030	20	30	27.74	26.47	6.35	2.43
STJ-XXXX-L2J-20-035	20	35	33.15	31.24	5.25	1.96
STJ-XXXX-L2J-20-040	20	40	38.12	35.81	5.35	2.50
STJ-XXXX-L2J-20-050	20	50	48.57	45.19	4.10	1.86
STJ-XXXX-L2J-20-075	20	75	73.84	68.23	3.35	1.88
STJ-XXXX-L2J-25-040	25	40	37.63	35.59	6.70	2.16
STJ-XXXX-L2J-25-050	25	50	48.11	44.98	5.40	1.86
STJ-XXXX-L2J-25-060	25	60	58.24	54.20	5.05	2.13
STJ-XXXX-L2J-25-075	25	75	73.49	68.07	4.35	2.03
STJ-XXXX-L2J-25-080	25	80	78.56	72.69	4.15	1.98
STJ-XXXX-L2J-25-100	25	100	98.58	91.03	4.10	2.38
STJ-XXXX-L2J-25-120	25	120	118.66	109.40	3.90	2.47
STJ-XXXX-L2J-25-150	25	150	149.07	137.09	2.70	1.56
STJ-XXXX-L2J-254-040	25.4	40	37.73	35.63	6.42	1.74
STJ-XXXX-L2J-254-050	25.4	50	48.12	44.98	5.37	1.71
STJ-XXXX-L2J-254-060	25.4	60	58.24	54.20	5.05	2.03

STJ-XXXX-L2J-254-075	25.4	75	73.50	68.07	4.35	1.95
STJ-XXXX-L2J-254-080	25.4	80	78.40	72.61	4.63	2.39
STJ-XXXX-L2J-254-100	25.4	100	98.58	91.03	4.10	2.32
STJ-XXXX-L2J-254-120	25.4	120	118.66	109.40	3.90	2.42
STJ-XXXX-L2J-254-150	25.4	150	149.07	137.09	2.70	1.52

5. BK7 Plano-Concave Lenses

Our BK7 plano-concave lens has one plane, one inward curved surface, and a negative focal length which has an important role to play in image shrinking and light dispersion.



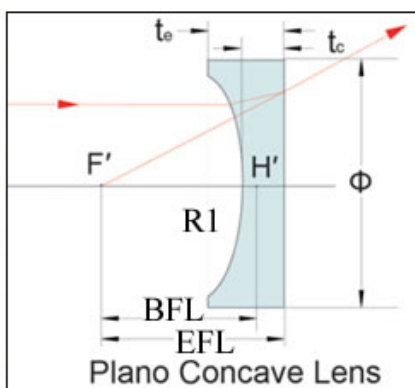
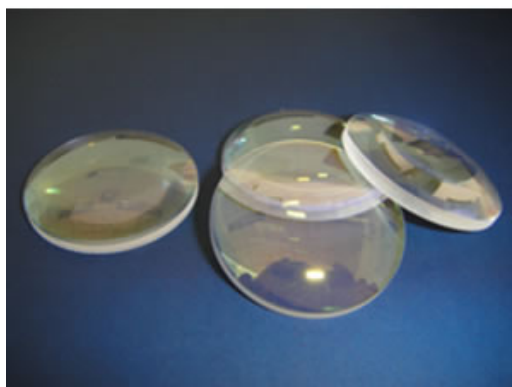
Material: BK7
 Diameter Tolerance: $+0/-0.1$ mm
 Thickness Tolerance: ± 0.2 mm
 Flatness: $\lambda/4$ @632.8nm
 Clear Aperture: 90%
 Focal Length Tolerance: $\pm 1\%$
 Surface Quality: 40-20
 Bevel: <0.25 mm x 45°
 Design Wavelength: 587.6nm
 Centration: 3 arc min

Part No.	OD	EFL	BFL	R1	TC	TE
STJ-XXXX-L3B-06-012	6	-12	-12.99	-6.20	1.50	2.27
STJ-XXXX-L3B-06-018	6	-18	-19.32	-9.30	2.00	2.50
STJ-XXXX-L3B-06-024	6	-24	-25.19	-12.40	1.80	2.17
STJ-XXXX-L3B-06-030	6	-30	-31.32	-15.50	2.00	2.29
STJ-XXXX-L3B-06-040	6	-40	-41.25	-20.67	1.90	2.12
STJ-XXXX-L3B-10-016	10	-16	-17.05	-8.27	1.60	3.28
STJ-XXXX-L3B-10-020	10	-20	-20.99	-10.34	1.50	2.79
STJ-XXXX-L3B-10-030	10	-30	-31.05	-15.50	1.60	2.43
STJ-XXXX-L3B-10-035	10	-35	-36.19	-18.09	1.80	2.50
STJ-XXXX-L3B-10-040	10	-40	-41.32	-20.67	2.00	2.61
STJ-XXXX-L3B-15-020	15	-20	-20.99	-10.34	1.50	4.72
STJ-XXXX-L3B-15-035	15	-35	-36.19	-18.09	1.80	3.43
STJ-XXXX-L3B-15-040	15	-40	-40.99	-20.67	1.50	2.91
STJ-XXXX-L3B-15-050	15	-50	-51.32	-25.84	2.00	3.11
STJ-XXXX-L3B-15-060	15	-60	-61.32	-31.01	2.00	2.92
STJ-XXXX-L3B-15-15480	15	-15480	-15482.64	-8000.06	4.00	4.00
STJ-XXXX-L3B-20-030	20	-30	-31.05	-15.50	1.60	5.26
STJ-XXXX-L3B-20-040	20	-40	-40.99	-20.67	1.50	4.08
STJ-XXXX-L3B-20-050	20	-50	-51.05	-25.84	1.60	3.61
STJ-XXXX-L3B-20-080	20	-80	-81.32	-41.34	2.00	3.23
STJ-XXXX-L3B-20-100	20	-100	-101.45	-51.68	2.20	3.18
STJ-XXXX-L3B-20-3870	20	-3870	-3872.64	-2000.02	4.00	4.02

STJ-XXXX-L3B-20-7740	20	-7740	-7742.64	-4000.03	4.00	4.01
STJ-XXXX-L3B-20-19350	20	-19350	-19353.30	-10000.08	5.00	5.00
STJ-XXXX-L3B-25-040	25	-40	-40.99	-20.67	1.50	5.71
STJ-XXXX-L3B-25-050	25	-50	-50.99	-25.84	1.50	4.72
STJ-XXXX-L3B-25-060	25	-60	-61.05	-31.01	1.60	4.23
STJ-XXXX-L3B-25-080	25	-80	-81.45	-41.34	2.20	4.13
STJ-XXXX-L3B-25-100	25	-100	-101.71	-51.68	2.60	4.13
STJ-XXXX-L3B-40-060	40	-60	-60.99	-31.01	1.50	8.81
STJ-XXXX-L3B-40-080	40	-80	-81.05	-41.34	1.60	6.76
STJ-XXXX-L3B-40-100	40	-100	-101.19	-51.68	1.80	5.83

6. Fused Silica Plano-Concave Lens

This plano-concave lens is exquisitely made with UV-grade synthetic fused silica. It features outstanding thermal properties, exceptional purity, as well as excellent environmental durability for rigorous applications.



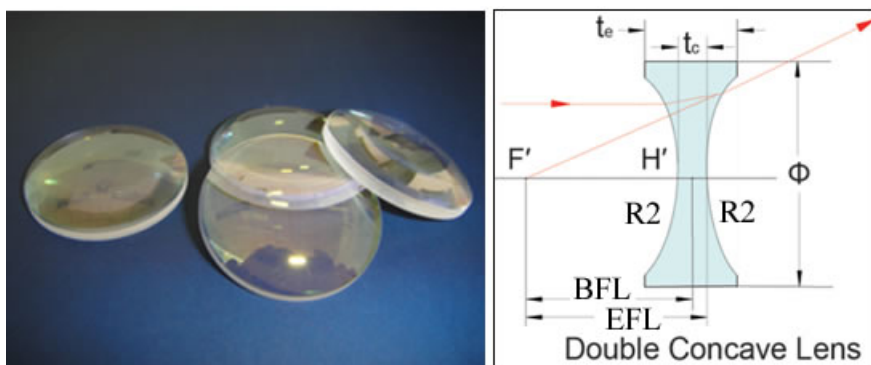
Material: UV Grade Fused Silica
 Diameter Tolerance: +0/-0.1mm
 Thickness Tolerance: ±0.2mm
 Flatness: $\lambda/4$ @632.8nm
 Clear Aperture: 90%
 Focal Length Tolerance: +/-1%
 Surface Quality: 40-20
 Bevel: <0.25mm x 45 °
 Design Wavelength: 587.6nm
 Centration: 3 arc min

Part No.	OD	EFL	BFL	R1	TC	TE
STJ-XXXX-L3J-06-012	6	-12	-13.10	-5.50	1.60	2.49
STJ-XXXX-L3J-06-018	6	-18	-19.37	-8.25	2.00	2.56
STJ-XXXX-L3J-06-024	6	-24	-25.37	-11.00	2.00	2.42
STJ-XXXX-L3J-06-035	6	-35	-36.51	-16.04	2.20	2.48
STJ-XXXX-L3J-10-018	10	-18	-19.37	-8.25	2.00	3.69
STJ-XXXX-L3J-10-024	10	-24	-25.37	-11.00	2.00	3.20
STJ-XXXX-L3J-10-030	10	-30	-31.37	-13.75	2.00	2.94
STJ-XXXX-L3J-10-040	10	-40	-41.51	-18.34	2.20	2.89
STJ-XXXX-L3J-127-020	12.7	-20	-21.10	-9.17	1.60	4.16
STJ-XXXX-L3J-127-024	12.7	-24	-25.37	-11.00	2.00	4.02
STJ-XXXX-L3J-127-030	12.7	-30	-31.65	-13.75	2.40	3.95
STJ-XXXX-L3J-127-040	12.7	-40	-41.71	-18.34	2.50	3.63
STJ-XXXX-L3J-127-050	12.7	-50	-52.06	-22.92	3.00	3.90
STJ-XXXX-L3J-20-030	20	-30	-31.10	-13.75	1.60	5.91
STJ-XXXX-L3J-20-040	20	-40	-41.10	-18.34	1.60	4.57
STJ-XXXX-L3J-20-050	20	-50	-51.37	-22.92	2.00	4.30
STJ-XXXX-L3J-20-075	20	-75	-76.78	-34.38	2.60	4.09
STJ-XXXX-L3J-20-100	20	-100	-102.06	-45.84	3.00	4.10
STJ-XXXX-L3J-20-4363	20	-4363	-4366.43	-2000.00	5.00	5.03

STJ-XXXX-L3J-254-035	25.4	-35	-36.03	-16.04	1.50	7.74
STJ-XXXX-L3J-254-040	25.4	-40	-41.10	-18.34	1.60	6.71
STJ-XXXX-L3J-254-050	25.4	-50	-51.23	-22.92	1.80	5.64
STJ-XXXX-L3J-254-075	25.4	-75	-76.23	-34.38	1.80	4.23
STJ-XXXX-L3J-254-100	25.4	-100	-101.71	-45.84	2.50	4.29
STJ-XXXX-L3J-508-100	50.8	-100	-101.23	-45.84	1.80	9.48
STJ-XXXX-L3J-508-150	50.8	-150	-151.10	-68.76	1.60	6.46
STJ-XXXX-L3J-508-250	50.8	-250	-251.37	-114.60	2.00	4.85

7. BK7 Double Concave Lenses

Our BK7 double-concave lens has two inwardly curved surfaces and a negative focal length. It is commonly designed for image shrinking and light dispersion. There are thousands of ready-made radiuses of curvature model in our company. Also, we can supply the custom-made products.



Material: BK7

Diameter Tolerance: $+0/-0.1$ mm

Thickness Tolerance: ± 0.2 mm

Flatness: $\lambda/4 @ 632.8$ nm

Clear Aperture: 90%

Focal Length Tolerance: $\pm 1\%$

Surface Quality: 40-20

Bevel: <0.25 mm x 45°

Design Wavelength: 587.6nm

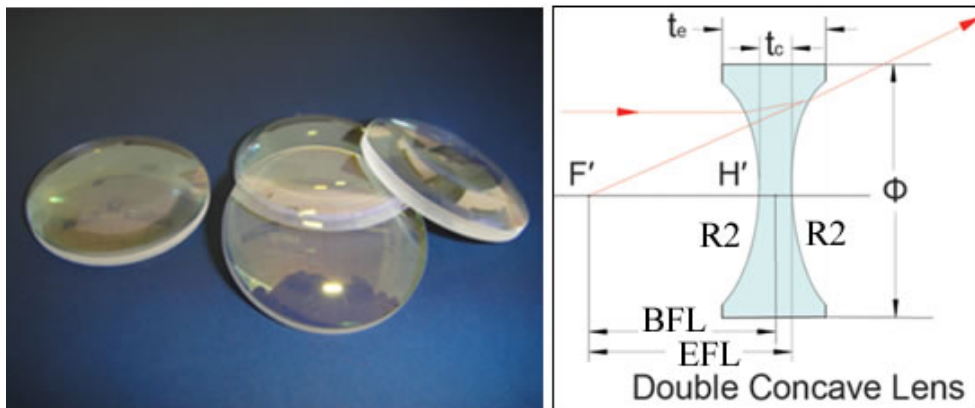
Centration: 3 arc min

Part No.	OD	EFL	BFL	R1=R2	TC	TE
STJ-XXXX-L1B-06-012	6	-12	-12.87	-12.85	2.72	3.43
STJ-XXXX-L1B-06-018	6	-18	-18.76	-19.00	2.37	2.85
STJ-XXXX-L1B-06-024	6	-24	-24.72	-25.18	2.22	2.58
STJ-XXXX-L1B-12-018	12	-18	-18.76	-19.00	2.37	4.31
STJ-XXXX-L1B-12-024	12	-24	-24.72	-25.18	2.22	3.67
STJ-XXXX-L1B-12-030	12	-30	-30.56	-31.30	1.72	2.88
STJ-XXXX-L1B-20-030	20	-30	-30.56	-31.30	1.72	5.00
STJ-XXXX-L1B-20-040	20	-40	-40.49	-41.60	1.50	3.94
STJ-XXXX-L1B-20-060	20	-60	-60.69	-62.37	2.10	3.71
STJ-XXXX-L1B-25-040	25	-40	-40.49	-41.60	1.50	5.35
STJ-XXXX-L1B-25-060	25	-60	-60.69	-62.37	2.10	4.63
STJ-XXXX-L1B-25-080	25	-80	-80.70	-83.05	2.14	4.03
STJ-XXXX-L1B-40-050	40	-50	-50.65	-52.02	2.00	10.00
STJ-XXXX-L1B-40-070	40	-70	-70.83	-72.78	2.53	8.13
STJ-XXXX-L1B-50-100	50	-100	-100.82	-103.79	2.51	8.62
STJ-XXXX-L1B-50-200	50	-200	-200.83	-207.15	2.52	5.55

8. Fused Silica Double Concave Lens

This double concave lens is exquisitely made with UV-grade synthetic fused silica. It is characterized by high thermal properties, exceptional purity, and excellent environmental durability for demanding

applications. There are thousands of ready-made radiuses of curvature model in our company. Like other products, our company is able to manufacture new models as per customers' requirements.



Material: UV Grade Fused Silica
 Diameter Tolerance: +0/-0.1mm
 Thickness Tolerance: ±0.2mm
 Flatness: $\lambda/4$ @632.8nm
 Clear Aperture: 90%
 Focal Length Tolerance: +/-1%
 Surface Quality: 40-20
 Bevel: <0.25mm x 45 °
 Design Wavelength: 587.6nm
 Centration: 3 arc min

Part No.	OD	EFL	BFL	R1=R2	TC	TE
STJ-XXXX-L1J-06-012	6	-12	-12.64	-11.30	1.92	2.73
STJ-XXXX-L1J-06-030	6	-30	-30.64	-27.80	1.90	2.22
STJ-XXXX-L1J-10-020	10	-20	-20.62	-18.62	1.83	3.20
STJ-XXXX-L1J-10-030	10	-30	-30.64	-27.80	1.90	2.81
STJ-XXXX-L1J-127-025	12.7	-25	-25.55	-23.17	1.61	3.38
STJ-XXXX-L1J-127-035	12.7	-35	-35.64	-32.38	1.87	3.13
STJ-XXXX-L1J-20-040	20	-40	-40.68	-36.98	2.00	4.76
STJ-XXXX-L1J-20-050	20	-50	-50.58	-46.11	1.71	3.90
STJ-XXXX-L1J-254-045	25.4	-45	-45.71	-41.58	2.08	6.05
STJ-XXXX-L1J-254-060	25.4	-60	-60.68	-55.32	2.00	4.96

9. BK7 Plano-Convex Cylindrical Lens

When compared with spherical lens, cylindrical lens has smaller spherical aberration and smaller chromatic aberration. Cylindrical lens features unidimensional magnification and could be divided into plano-convex cylindrical lens, plano-concave cylindrical lens, double convex cylindrical lens and double concave cylindrical lens.



Material: BK7 /FS(Fused Silica)
 Front focal Length Tolerance: $\pm 2\%$
 Center thickness tolerance: 3 arc min
 Diameter Tolerance: $\pm 0.2\text{mm}$
 Clear Aperture: $> 80\%$
 Surface flatness: x- $\lambda/2$; y- 2λ
 Surface Quality: 40-20
 Chamfer: 0.2mm x 45°
 Laser V-Coat

Application: BK7 plano-convex cylindrical lens could be installed on diverse devices, such as laser modules, diverse testing and detecting instruments, military instruments, slow axis collimation lens for semiconductor laser bar, laser rangefinder, laser scanner, laser instruments for medical field and etc.

Diameter (mm)	Effective focal length (mm)	Wavelength (nm)
Ø6	45	1064
Ø36	200	980
Ø36	400	980
25.4X25.4	250	980
50X30	60	980

Custom-design and –fabrication available upon request.

10. Coating Film

The common laser wavelengths include 266nm, 355nm, 405nm, 468nm, 532nm, 650nm, 808nm, 980nm, 1064nm, 1319nm, 1550nm, 10.6um and so forth. All laser coatings of optical windows, mirrors, and lenses make use of dielectric coatings for optimization of transmission and reflection performance at the designated laser wavelength, thus enhancing the damage threshold of laser. They are ideal for various kinds of laser systems. In addition, we also can supply the design of coating according to the requirements of our customers.

1). 0° AOI AR Coating Single Laser Line

Design Wavelength: AR@266nm, AR@355nm, AR@405nm, AR@468nm, AR@532nm, AR@650nm, AR@808nm, AR@980nm, AR@1064nm, AR@1319nm, AR@1550nm, AR@2100nm
 Reflectance: $R < 0.02\%$

2). 0° AOI AR Coating Dual Laser Line

Design Wavelength: AR@532nm & 1064nm 1064nm $R < 0.2\%$, 532nm $R < 0.5\%$

3). 0° AOI AR Coating Dual Laser Line

Design Wavelength: AR@808nm & 1064nm 1064nm $R < 0.2\%$, 808nm $R < 0.5\%$

4). 0° AOI AR Coating Dual Laser Line

Design Wavelength: AR@1064nm&1319nm 1064nm $R < 0.2\%$, 1319nm $R < 0.5\%$

5). 0°~ 45° AOI HR Coating Single Laser Line

Design Wavelength: HR@266nm, HR@355nm, HR@405nm, HR@468nm, HR@532nm, HR@650nm, HR@808nm, HR@980nm, HR@1064nm, HR@1319nm, HR@1550nm, Reflectance: $R > 99.9\%$

6). 0° AOI HR Coating Dual Laser Line

Design Wavelength: HR@532nm&1064nm, HT@808nm, 1064nm $R > 99.8\%$, 532nm $R > 99.5\%$

7). 0° AOI HR Coating Three Laser Line

Design Wavelength: 355nm & 532nm & 1064nm, 355nm 532nm, 1064nm, $R > 99.5\%$

8). 0° AOI PR Coating Single Laser Line Beam Splitter

Design Wavelength: PR@1064nm; Partial Transmittance: $T = 5\% \sim 95\% \pm 2\%$

9). 0° AOI Laser Line SHORPASS, LONGPASS

Design Wavelength: HR@1064nm, $R > 99.8\%$; HT@808nm $T > 99\%$ (AR@808nm, both sides)
 Design Wavelength: HR@808nm, $R > 99.8\%$; HT@1064nm $T > 99\%$ (AR@1064nm, both sides)

10). 0° AOI Laser Line SHORTPASS
Design Wavelength: HR@1064nm, R>99.8%; HT@532nm T>98% (AR@532nm,both sides)

11). 0° AOI Laser Line LONGPASS
Design Wavelength: HR@266nm ,R>99.9%; HT@532nm T>99% (AR@532nm,both sides)

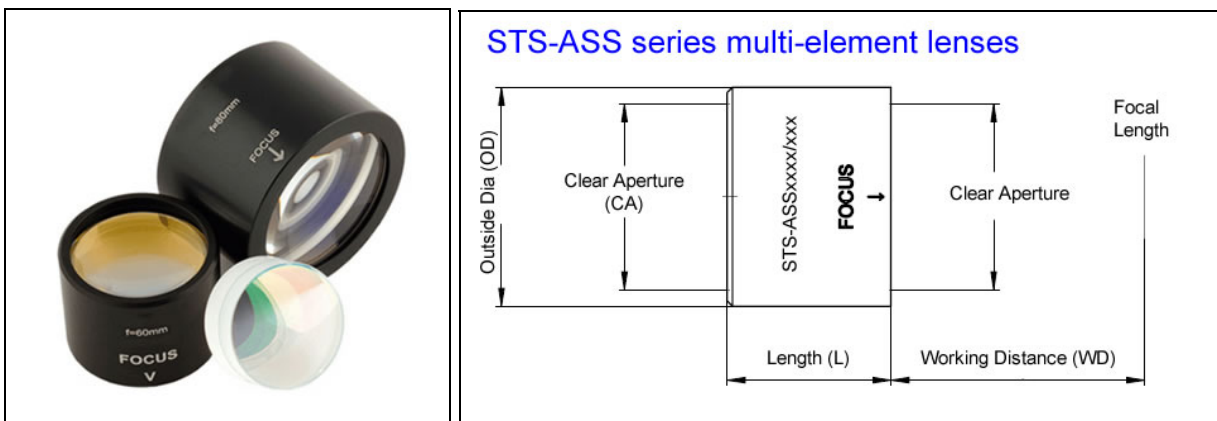
12). 0° AOI Laser Line LONGPASS
Design Wavelength: HR@355nm,R>99.8%; HT@532nm & @1064nm T>98%; (AR@1064nm, AR@532nm, both sides)

13). 0° AOI Laser Line SHORTPASS
Design Wavelength: HR@946nm, R>99.8%; HT@810nm, T>99% (AR@810nm, both sides)

10. Multi-element Focusing Lenses

Multi-element lens systems minimize the imaging errors of single lenses and provide precision focusing for non-scanning applications. You have to distinguish between monochromatic and achromatic systems. Monochromatic systems are only corrected for a specific wavelength. So they are most suitable for laser applications. Especially fused silica lenses in air-spaced design are preferably chosen for collimation or focusing of high power laser. Achromatic systems have to consist of lenses with different glass types and dispersions. Only a matched combination allows the correction of the chromatic error especially in the visible range. Usually components are cemented. That leads to a reduced damage threshold of the achromatic system, which limits the use of laser with average powers of less than 200 watt.

We offer mounted air spaced multi element systems in fused silica and optical glass.



Part Number	λ [nm]	FL [mm]	material	OD [mm]	CA[mm]	Length [mm]	WD [mm]	mounted	NO. of lenses
STS-ASS5185/199	266	81.9	fs	40	35	15	73.4	mounted	2
STS-ASS2550/199	266	44.3	fs	30	23	20	40.4	mounted	2
STS-ASS2020/199	266	23.8	fs	25	12.5	17	17.1	mounted	3
STS-ASS2060/199	266	57.3	fs	40	34	30	43.9	mounted	3
STS-ASS5120/199	266	109	fs	48	40	20	99.1	mounted	2
STS-ASS2060/075	355	60	fs	40	34	30	46.5	mounted	3
STS-ASS2550/075	355	48.2	fs	30	23	20	43.5	mounted	2
STS-ASS5185/075	355	86.4	fs	40	31	15	77.6	mounted	2
STS-ASS2020/075	355	25.4	fs	25	12.5	17	17.9	mounted	3
STS-ASS5120/075	355	114.4	fs	48	40	20	104.4	mounted	2
STS-ASS2060/292	515 - 545	62.4	fs	40	34	32	47.9	mounted	3
STS-ASS2550/292	515 - 545	49.3	fs	30	23	20	45.7	mounted	2
STS-ASS2560/292	515 - 545	58.4	fs	30	23	24.5	51.8	mounted	2
STS-ASS5300/292	515 - 545	99.7	fs	41	20	16	86.7	mounted	3

STS-ASS2020/292	515 - 545	24.5	fs	25	12.5	13.5	19.3	mounted	3
STS-ASS6200/292	515 - 545	196.1	fs	54	48	15	188.5	mounted	2
STS-ASS5370/292	515 - 545	174.5	fs	41	35	24	174.1	mounted	2
STS-ASS6151/292	515 - 545	146.3	fs	56	50	20	135	mounted	2
STS-ASS1030/121	532	29.8	glass	20	14	11	25	mounted	2
STS-ASS0177/121	532	76.6	glass	41	35	24	64	mounted	3
STS-ASS0115/121	532	89.4	glass	41	35	32	88.7	mounted	3
STS-ASS6001/121	532	76.1	glass	54	48	36	63.9	mounted	3
STS-ASS5340/121	532	88.9	glass	41	30	21.8	64.4	mounted	2
STS-ASS5320/121	532	114.5	glass	41	31	15.5	105.8	mounted	2
STS-ASS5151/328	1030 - 1090	148.9	fs	54	48	43	152.3	mounted	2
STS-ASS6200/328	1030 - 1090	200.9	fs	54	48	15	193.2	mounted	2
STS-ASS6101/328	1030 - 1090	100.6	fs	56	50	22.5	86.3	mounted	2
STS-ASS1093/328	1030 - 1090	100.6	fs	48	42	22	86.1	mounted	2
STS-ASS5201/328	1030 - 1090	200.1	fs	75	68	23	186.2	mounted	2
STS-ASS5170/328	1030 - 1090	171.1	fs	50	45	43	175.2	mounted	2
STS-ASS5152/328	1030 - 1090	153.4	fs	75	68	34	129.2	mounted	2
STS-ASS2020/328	1030 - 1090	25.1	fs	25	12.5	13.5	19.8	mounted	3
STS-ASS6120/328	1030 - 1090	120.1	fs	54	48.5	59	112.6	mounted	2
STS-ASS5150/328	1030 - 1090	148.9	fs	50	45	43	152.6	mounted	2
STS-ASS5120/328	1030 - 1090	128.7	fs	48	40	20	110.8	mounted	2
STS-ASS2060/328	1030 - 1090	63.9	fs	40	34	32	49.3	mounted	3
STS-ASS2250/328	1030 - 1090	249.8	fs	54	50	20	247.5	mounted	2
STS-ASS5080/328	1030 - 1090	79.6	fs	54	48	36	60.2	mounted	3
STS-ASS2560/328	1030 - 1090	59.9	fs	30	23	22.5	57.5	mounted	2
STS-ASS2550/328	1030 - 1090	49.7	fs	30	23	20	48.4	mounted	2

11. Aspheres

Aspheres offer the great advantage to accomplish imaging tasks with one optical element where lens systems were needed otherwise. Main advantages of aspheres are:

- less spherical aberrations
- less weight
- increased transmission
- no internal ghosts

The combination of high purity fused silica and low absorption coatings decreases the thermal induced shift of focal length and working distance.

Another application of an asphere is beam shaping with respect to the intensity distribution or the phase. A typical conversion is the change of a Gaussian profile into a top-hat profile. For material processing, this form has the advantage of a more homogeneous removal of surface material, steeper borders between removal zone and surrounding material and a resulting smaller heat affected zone (HAZ).

Our capability allows production of aspheres up to diameter 200 mm. Measurement setup (interferometric wavefront test, tactile and optical 3D profilometry) enables us to ensure a surface quality of 0.15 μm PV(fWD) and RMSi < 0.025 μm depending on geometry. Even sagittal heights $z(r)$ up to 21 mm are measurable enabling the production and test of very steep radii at certain diameters.

Our range of products covers unmounted and mounted precision aspheres out of fused silica with focal lengths from 20 mm to 400 mm, which are usable for focusing and collimation. Special forms and customized versions are available on request. Our technological possibilities are listed below.

Dimensions

- Diameter: 12-200mm
- Diameter tolerance: $\pm 0.01\text{mm}$
- Thickness tolerance: $\pm 0.025\text{mm}$

Surface form and tolerance (ISO 10110; @546nm)

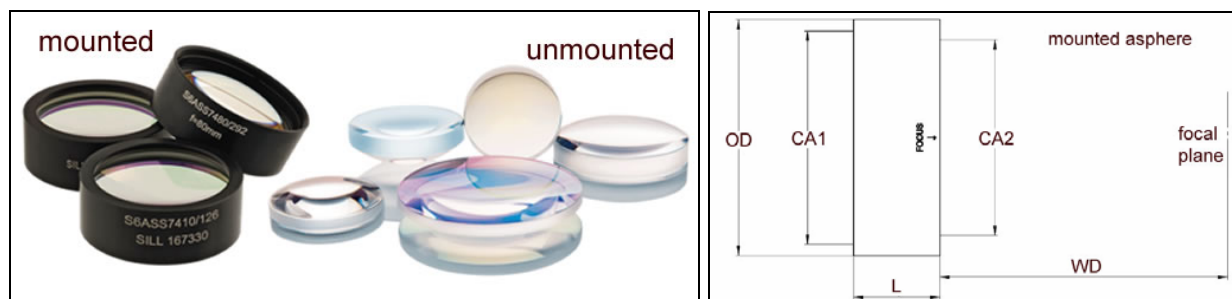
- Concave radius of curvature (local): $>35\text{mm}$
- Sagittal deviation (PV): $<0.5\text{fr}$ ($\sim 0.137\mu\text{m}$)
- Irregularity (PV): $<0.5\text{fr}$ ($\sim 0.137\mu\text{m}$)
- Rotational invariant irregularity (PV): $<0.2\text{gr}$ ($\sim 0.055\mu\text{m}$)
- RMSi: $<0.1\text{fr}$ ($\sim 0.025\mu\text{m}$)
- Centration (tilt angle between surfaces): $<1\text{arcmin}$
- Cleanliness/imperfections: 3×0.04 (S/D: 10/5)

Materials

- All fused silica types (Corning, Heraeus, Nikon, Ohara)
- Optical glass (CDGM, Hoya, Ohara, Schott,

Metrology

- Tactile 2D measurement
- 2D/3D profilometry via white light interferometry
- Interferometric wavefront measurement (632.8nm)



Part Number	λ [nm]	FL [mm]	material	OD- \emptyset [mm]	CA1 [mm]	L [mm]	WD [mm]	mounted
STS-ADX0220/328	1030-1090	20.0	fs	25.0	22.5	13.2	13.3	unmounted
STS-ADX0230/328	1030-1090	30.0	fs	30.0	27.0	16.0	20.9	unmounted
STS-ADX0240/328	1030-1090	40.0	fs	30.0	27.0	15.0	31.3	unmounted
STS-ADX0250/328	1030-1090	50.0	fs	30.0	27.0	13.7	42.1	unmounted
STS-ADX0260/328	1030-1090	60.0	fs	30.0	27.0	11.3	53.5	unmounted
STS-ADX0310/328	1030-1090	100.0	fs	38.1	34.3	11.0	93.7	unmounted
STS-ADX0311/328	1030-1090	100.0	fs	30.0	27.0	11.0	93.7	unmounted
STS-ADX0312/328	1030-1090	120.0	fs	38.1	34.3	10.3	114.0	unmounted
STS-ADX0313/328	1030-1090	120.0	fs	30.0	27.0	10.3	114.0	unmounted
STS-ADX0315/328	1030-1090	150.0	fs	38.1	34.3	9.6	144.4	unmounted
STS-ADX0316/328	1030-1090	150.0	fs	30.0	27.0	9.6	144.4	unmounted
STS-ADX0320/328	1030-1090	200.0	fs	38.1	34.3	8.9	194.8	unmounted
STS-ADX0325/328	1030-1090	250.1	fs	38.1	34.3	8.9	245.2	unmounted
STS-ADX0330/328	1030-1090	300.0	fs	30.0	34.3	9.0	294.7	unmounted
STS-ADX0370/328	1030-1090	71.8	fs	38.1	34.3	11.0	63.6	unmounted
STS-ADX0380/328	1030-1090	80.0	fs	38.1	34.3	12.0	73.1	unmounted
STS-ADX0381/328	1030-1090	80.0	fs	30.0	27.0	12.0	73.1	unmounted
STS-ADX0510/328	1030-1090	100.0	fs	52.0	46.8	17.5	89.8	unmounted
STS-ADX0512/328	1030-1090	120.0	fs	52.0	46.8	18.0	109.6	unmounted
STS-ADX0515/328	1030-1090	150.0	fs	52.0	46.8	11.0	143.5	unmounted
STS-ADX0520/328	1030-1090	200.1	fs	52.0	46.8	8.7	195.0	unmounted
STS-ADX0530/328	1030-1090	300.0	fs	52.0	47.0	9.0	294.6	unmounted
STS-ADX0540/328	1030-1090	400.0	fs	52.0	48.0	8.5	395.2	unmounted
STS-ADX0580/328	1030-1090	80.9	fs	52.0	46.8	17.8	70.4	unmounted
STS-ADX4350/373	420-480	50.0	fs	38.1	34.3	14.0	41.8	unmounted
STS-ADX4360/373	420-480	60.0	fs	38.1	34.3	12.0	52.9	unmounted
STS-ADX4370/373	420-480	70.0	fs	38.1	34.3	11.0	63.5	unmounted
STS-ADX4380/373	420-480	80.0	fs	38.1	34.3	10.0	74.1	unmounted

S6ASS7410/328	1030-1090	100.0	fs	41.0	37.0	15.0	91.7	mounted
S6ASS7412/328	1030-1090	120.0	fs	41.0	37.0	15.0	111.9	mounted
S6ASS7415/328	1030-1090	150.0	fs	41.0	37.0	15.0	142.2	mounted
S6ASS7420/328	1030-1090	200.0	fs	41.0	37.0	15.0	192.5	mounted
S6ASS7425/328	1030-1090	250.1	fs	41.0	37.0	15.0	242.0	mounted
S6ASS7480/328	1030-1090	80.0	fs	41.0	37.0	15.0	71.3	mounted
S6ASS7510/328	1030-1090	100.0	fs	56.0	50.0	20.0	89.0	mounted
S6ASS7512/328	1030-1090	120.0	fs	56.0	50.0	20.0	108.6	mounted
S6ASS7515/328	1030-1090	150.0	fs	56.0	50.0	20.0	142.2	mounted
S6ASS7520/328	1030-1090	200.1	fs	56.0	50.0	20.0	193.5	mounted
S6ASS7540/328	1030-1090	400.0	fs	56.0	50.0	18.3	393.5	mounted
S6ASS7580/328	1030-1090	80.9	fs	56.0	50.0	20.0	70.0	mounted
S6ASS8411/328	1030-1090	100.0	fs	36.0	28.0	20.5	90.0	mounted
S6ASS8413/328	1030-1090	120.0	fs	36.0	28.0	20.5	110.3	mounted
S6ASS8416/328	1030-1090	150.0	fs	36.0	28.0	20.5	140.6	mounted
S6ASS8420/328	1030-1090	20.0	fs	36.0	23.0	20.5	10.7	mounted
S6ASS8430/328	1030-1090	30.0	fs	36.0	28.0	20.5	18.8	mounted
S6ASS8440/328	1030-1090	40.0	fs	36.0	28.0	20.5	28.5	mounted
S6ASS8450/328	1030-1090	50.0	fs	36.0	28.0	20.5	38.9	mounted
S6ASS8460/328	1030-1090	60.0	fs	36.0	28.0	20.5	50.1	mounted
S6ASS8481/328	1030-1090	80.0	fs	36.0	28.0	20.5	69.6	mounted

Trapped Ion lenses

Trapped (cold) ions are a research topic with increasing interest over the last few years because of their possibility to store Qubits (quantum bits) and the related use for quantum computers. Of course, it is not only important to use them, but to know their behaviour in detail via various basic experiments.

We have designed lenses both, for just observation and observation combined with laser focusing for these experiments. Those lenses are exceptional for their high NA and adjustment to specific wavelengths (UV to IR). As the vacuum cryostats differ in dimension (e.g. the window thickness) every lens has to be designed specifically for the existing conditions.

Adaption for your window thickness is possible. We are also pleased to develop lenses according to your requirements.

CO2 Laser Focusing Lenses

1. CO2 Laser Focusing Lenses (Plano-Convex Lenses)

Specifications:	Standards
Material quality	Laser Grade without boundaries and visible inclusions
Range of Sizes	Diameter : 5 – 76.2 +0/-0.10 mm Edge Thickness : 2 – 12 +/-0.10 mm Thickness (radiused) : 2 – 5 +/-0.05 mm
Range of Effective Focal Length (EFL)	12.7-254.0 +/- 2 %
Clear Aperture (polished)	90% of diameter
Surface Figure (power-irregularity) at 0.63um	Plano: 1 fringe - 0.5 fringe per inch Radiused : varies dependent upon radius
Surface Quality: Scratch-Dig	40/20
AR Coating Reflectivity at 10.6 microns	0.25%

Description of Part Number:

FL-XXXX-F-D-T-EN-MN-YY

FL: single-element focusing lens

XXXX: laser wavelength, 10.6um.

F: focal length, mm

D: lens diameter, mm

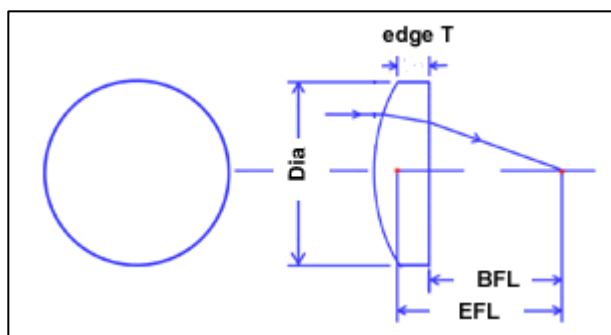
T: lens edge thickness, mm

EN: Dimension unit is in inch (If there is no EN, it means metric unit in mm).

MN: lens shape, MN means meniscus, no MN means plano-convex,

YY: others such as CC, UO, JS etc.

Coating: di-electric coating at 10.6Um.



Part number	Material	FL mm/inch	BFL mm	Dia. mm/inch	Edge T mm
FL-10.6-5.0ZLP25	ZnSe	25		12.7/0.5	2.5
FL-10.6-F25.4-D12.7-JS	ZnSe	25.4/1		12.7/0.5	
FL-10.6-F40-D16-T2-CC	ZnSe	40	39.1	16	2.0
FL-10.6-F40-D18-JS	ZnSe	40	39.1	18	
FL-10.6-F50-D16-T2-CC	ZnSe	50	49.1	16	2.0
FL-10.6-F50-D18-JS	ZnSe	50	49.1	18	
FL-10.6-F50-D25-JS	ZnSe	50	49.1	25	
FL-10.6-F55-D20-JS	ZnSe	55		20	
FL-10.6-F60-D18-T2-CC	ZnSe	60	59.1	18	2.0
FL-10.6-F60-D18-JS	ZnSe	60	59.1	18	
FL-10.6-F74-D30-T2.5-JS	ZnSe	75		30	2.5
FL-10.6-F80-D25-T2.5-CC	ZnSe	80	78.8	25	2.5
FL-10.6-F80-D25-JS	ZnSe	80	78.8	25	
FL-10.6-F95.25-D25.4-JS	ZnSe	95.25/3.75		25.4/1.0	
FL-10.6-15ZLP95-1106	ZnSe	95/3.75		38.05/1.5	3
FL-10.6-F100-D25-T2.5-CC	ZnSe	100	98.9	25	2.5
FL-10.6-F100-D25-JS	ZnSe	100	98.9	25	
FL-10.6-F100-D25.4-WT	ZnSe	100	98.9	25.4	3
FL-10.6-15ZLP100/7-10UM	ZnSe	100		38.05/1.5	3
FL-10.6-F127-D27.95-JS	ZnSe	127/5		27.95/1.1	
FL-10.6-F127-D25.4-JS	ZnSe	127/5		25.4/1.0	
FL-10.6-11EX1ZLP127	ZnSe	127/5		28/1.1	3.17
FL-10.6-11PHGP127-BE	ZnSe	127/5		28/1.1	4
FL-10.6-11ZLP127	ZnSe	127/5		28/1.1	3
FL-10.6-15HGPP127	ZnSe	127/5		38.05/1.5	6
FL-10.6-15PHGP127	ZnSe	127/5		38.05/1.5	7.6

FL-10.6-15ZLP127	ZnSe	127/5		38.05/1.5	3
FL-10.6-20PEHGP127	ZnSe	127/5		50.8/2	9.58
FL-10.6-20PHGP127	ZnSe	127/5		50.8/2	7.87
FL-10.6-15CIN130	ZnSe	130		38.05/1.5	7.1
FL-10.6-20CIN132	ZnSe	132		50.8/2	9.68
FL-10.6-15ZLP175	ZnSe	175		38.05/1.5	3
FL-10.6-6.7ZLP178	ZnSe	178		17	1.79
FL-10.6-15HGPP190	ZnSe	190/7.5		38.05/1.5	6
FL-10.6-20PEHGP190	ZnSe	190/7.5		50.8/2	9.58
FL-10.6-15EXZLP190	ZnSe	190/7.5		38.05/1.5	2
FL-10.6-20PHGP190	ZnSe	190.5/7.5		50.8/2	7.87
FL-10.6-15PHGP190	ZnSe	190.5/7.5		38.05/1.5	7.6
FL-10.6-15CIN194	ZnSe	194/7.64		38.05/1.5	7.1
FL-10.6-20CIN195	ZnSe	195/7.68		50.8/2	9.68
FL-10.6-20PHGP222	ZnSe	222/8.74		50.8/2	7.87
FL-10.6-20PHGP254	ZnSe	254/10		50.8/2	7.87
FL-10.6-11ZLP254	ZnSe	254/10		28	3
FL-10.6-5.9ZLP2800	ZnSe	280/10		15	2.5
FL-10.6-15HGPP381	ZnSe	381/15		38.05	6
FL-10.6-20ZLP1700	ZnSe	1700/66.9		50.8/2	3.5
FL-10.6-20PMGP15000	ZnSe	15000/590.5		50.8/2	4.06

1. FL=focal length; BFL-back focal length.
2. There are too many items and models and welcome to call us or send us an email if you have any further enquiry or question!

2. LPZ Series Plano-convex ZnSe Lenses Coated AR-AR @ 10.6um

This wide range of CO₂ plano-convex lenses have been prepared to fit most OEM, Industrial and Medical laser systems. All have been manufactured to high-quality laser specifications for high-power applications.

Made with laser grade zinc selenide with computer optimized anti-reflection coatings.

Specifications:

Material: ZnSe Laser Grade C.V.D. type

Diameter Tolerances: +0.000", -0.005"

Thickness: ±0.010"

Surface Figure: < 1/40 wavelength @ 10.6µm

Centration: < 0.001"

Focal Length Tolerance: ±1.0%

Surface Quality: < 40/20 scratch-dig Laser Finish

Spectral Performance:

Standard AR Coating type Both Sides @ 10.6µm (AR)

Absorption: < 0.25 % total

Reflectance: < 0.20% per surface @ 10.6µm

Transmittance: > 99.0% typical

Ultra Low Absorption AR Coating type Both Sides @ 10.6µm (ULA)

Absorption: < 0.15 % total

Reflectance: < 0.25% per surface

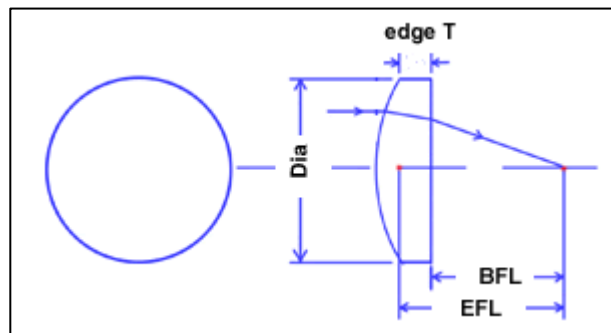
Transmittance: > 99.0% typical

Dual Band AR Coating type Both Sides @ 10.6µm and .633µm (DBAR)

Absorption: < 0.30 % total

Reflectance: < 0.25% per surface @ 10.6µm

Transmittance: > 98.5% @ 10.6µm with > 90% @ .633µm



Model Number	Diameter	Focal Length	Edge Thickness
FL-10.6-LZP-0710-DBAR	0.750"	1.00"	0.070"
FL-10.6-LZP-0715-DBAR	0.750"	1.50"	0.070"
FL-10.6-LZP-0720-DBAR	0.750"	2.00"	0.070"
FL-10.6-LZP-0720-ET2.0	0.750"	2.00"	0.080"

FL-10.6-LZP-0725-DBAR	0.750"	2.50"	0.070"
FL-10.6-LZP-0730-DBAR	0.750"	3.00"	0.070"
FL-10.6-LZP-0730-ET3.0	0.750"	3.00"	0.120"
FL-10.6-LZP-0735-DBAR	0.750"	3.50"	0.070"
FL-10.6-LZP-0740-DBAR	0.750"	4.00"	0.070"
FL-10.6-LZP-0750-DBAR	0.750"	5.00"	0.070"
FL-10.6-LZP-0775-DBAR	0.750"	7.50"	0.070"
FL-10.6-LZP-07A0-DBAR	0.750"	10.0"	0.070"
FL-10.6-LZP-07A2-DBAR	0.750"	12.0"	0.070"
FL-10.6-LZP-07A5-DBAR	0.750"	15.0"	0.070"
FL-10.6-LZP-07B0-DBAR	0.750"	20.0"	0.070"
FL-10.6-LZP-1010-ET2.0	1.00"	1.00"	0.080"
FL-10.6-LZP-1015-ET2.0	1.00"	1.50"	0.080"
FL-10.6-LZP-1025-ET3.0	1.00"	2.50"	0.120"
FL-10.6-LZP-1030-ET3.0	1.00"	3.00"	0.120"
FL-10.6-LZP-1035-ET3.0	1.00"	3.50"	0.120"
FL-10.6-LZP-1040-ET3.0	1.00"	4.00"	0.120"
FL-10.6-LZP-1050-ET3.0	1.00"	5.00"	0.120"
FL-10.6-LZP-1060-ET3.0	1.00"	6.00"	0.120"
FL-10.6-LZP-1075-ET3.0	1.00"	7.50"	0.120"
FL-10.6-LZP-10A0-ET3.0	1.00"	10.0"	0.120"
FL-10.6-LZP-10A5-ET3.0	1.00"	15.0"	0.120"
FL-10.6-LZP-10B0-ET3.0	1.00"	20.0"	0.120"
FL-10.6-LZP-10B5-ET3.0	1.00"	25.0"	0.120"
FL-10.6-LZP-1115-ET2.0	1.10"	1.50"	0.080"
FL-10.6-LZP-1125-ET3.0	1.10"	2.50"	0.120"
FL-10.6-LZP-1125-ET4.0	1.10"	2.50"	0.160"
FL-10.6-LZP-1125-ET6.0	1.10"	2.50"	0.236"
FL-10.6-LZP-1135-ET3.0	1.10"	3.50"	0.120"
FL-10.6-LZP-1138-ET3.0	1.10"	3.75"	0.120"
FL-10.6-LZP-1138-ET4.0	1.10"	3.75"	0.160"
FL-10.6-LZP-1150-ET3.0	1.10"	5.00"	0.120"
FL-10.6-LZP-1150-ET4.0	1.10"	5.00"	0.160"
FL-10.6-LZP-1150-ET6.0	1.10"	5.00"	0.236"
FL-10.6-LZP-1160-ET3.0	1.10"	6.00"	0.120"
FL-10.6-LZP-1175-ET3.0	1.10"	7.50"	0.120"
FL-10.6-LZP-1175-ET6.0	1.10"	7.50"	0.236"
FL-10.6-LZP-11A0-ET3.0	1.10"	10.0"	0.120"
FL-10.6-LZP-1525-ET3.0	1.500"	2.50"	0.120"
FL-10.6-LZP-1525-ET4.0	1.500"	2.50"	0.160"
FL-10.6-LZP-1530-ET3.0	1.500"	3.00"	0.120"
FL-10.6-LZP-1535-ET3.0	1.500"	3.50"	0.120"
FL-10.6-LZP-1538-ET3.0	1.500"	3.75"	0.120"
FL-10.6-LZP-1540-ET3.0	1.500"	4.00"	0.120"
FL-10.6-LZP-1550-ET2.0	1.500"	5.00"	0.080"
FL-10.6-LZP-1550-ET3.0	1.500"	5.00"	0.120"
FL-10.6-LZP-1550-ET4.0	1.500"	5.00"	0.160"
FL-10.6-LZP-1550-ET5.0	1.500"	5.00"	0.200"
FL-10.6-LZP-1550-ET6.0	1.500"	5.00"	0.236"
FL-10.6-LZP-1550-ET7.6	1.500"	5.00"	0.300"
FL-10.6-LZP-1551-ET7.0	1.500"	5.13"	0.280"
FL-10.6-LZP-1560-ET3.0	1.500"	6.00"	0.120"
FL-10.6-LZP-1574-ET7.6	1.500"	7.45"	0.300"
FL-10.6-LZP-1575-ET3.0	1.500"	7.50"	0.120"
FL-10.6-LZP-1575-ET4.0	1.500"	7.50"	0.160"
FL-10.6-LZP-1575-ET6.0	1.500"	7.50"	0.236"
FL-10.6-LZP-1575-ET7.6	1.500"	7.50"	0.300"
FL-10.6-LZP-1576-ET7.6	1.500"	7.63"	0.300"
FL-10.6-LZP-15A0-ET2.0	1.500"	10.0"	0.080"
FL-10.6-LZP-15A0-ET4.0	1.500"	10.0"	0.160"

FL-10.6-LZP-15A0-ET6.0	1.500"	10.0"	0.160"
FL-10.6-LZP-15A5-ET3.0	1.500"	15.0"	0.120"
FL-10.6-LZP-15B0-ET3.0	1.500"	20.0"	0.120"
FL-10.6-LZP-15B5-ET3.0	1.500"	25.0"	0.120"
FL-10.6-LZP-15C9-ET3.0	1.500"	39.3"	0.120"
FL-10.6-LZP-15E9-ET3.0	1.500"	59.0"	0.120"
FL-10.6-LZP-15X9-ET4.0	1.500"	59.0"	0.160"
FL-10.6-LZP-2050-ET7.6	2.00"	5.0"	0.300"
FL-10.6-LZP-2050-ET9.7	2.00"	5.0"	0.380"
FL-10.6-LZP-2051-ET9.7	2.00"	5.188"	0.380"
FL-10.6-LZP-2074-ET7.9	2.00"	7.45"	0.310"
FL-10.6-LZP-2074-ET9.7	2.00"	7.45"	0.380"
FL-10.6-LZP-2075-ET2.5	2.00"	7.50"	0.100"
FL-10.6-LZP-2075-ET4.9	2.00"	7.50"	0.193"
FL-10.6-LZP-2075-ET7.9	2.00"	7.50"	0.310"
FL-10.6-LZP-2075-ET9.7	2.00"	7.50"	0.380"
FL-10.6-LZP-2076-ET7.6	2.00"	7.560"	0.300"
FL-10.6-LZP-2076-ET9.7	2.00"	7.673"	0.380"
FL-10.6-LZP-2088-ET8.0	2.00"	8.75"	0.315"
FL-10.6-LZP-20A0-ET4.7	2.00"	10.0"	0.185"
FL-10.6-LZP-20A0-ET9.7	2.00"	10.0"	0.380"
FL-10.6-LZP-20A3-ET8.0	2.00"	12.50"	0.315"
FL-10.6-LZP-2588-ET7.87	2.00"	8.75"	0.310"

3. CO2 Laser Focusing Lenses (Meniscus Lenses)

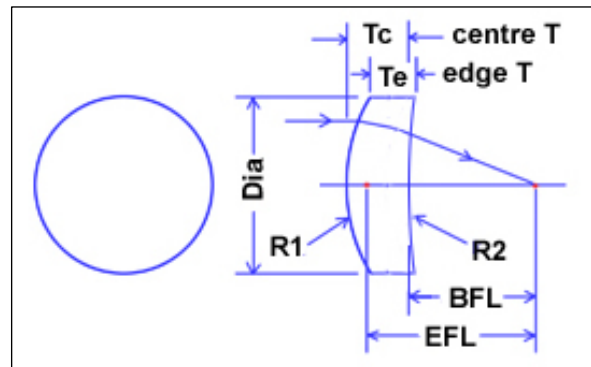
Positive meniscus lenses may be used to increase the numerical aperture of a positive lens assembly without an undue increase in the aberrations.

The For the case of a lens of thickness t_c in air, and surfaces with radii of curvature R_1 and R_2 , the effective focal length f is given by:

$$\frac{1}{f} = (n-1) \cdot \left[\frac{1}{R_1} - \frac{1}{R_2} + \frac{t_c(n-1)}{nR_1R_2} \right]$$

where n is the refractive index of the lens medium. The quantity $1/f$ is also known as the optical power of the lens. The the back focal distance:

$$BFL = f \cdot \left[1 - \frac{t_c(n-1)}{nR_1} \right]$$



In the sign convention used here, the value of R_1 will be positive if the first lens surface is convex, and negative if it is concave. The value of R_2 is positive if the second surface is concave, and negative if convex. Note that sign conventions vary between different authors, which results in different forms of these equations depending on the convention used.

Meniscus lenses form the largest and most popular part of our product range.

- Optimised meniscus designs
- Manufactured in high quantities to keep costs low.
- Quality matches or exceeds any other supplier

Specifications:

Diameter tolerance: +0/-0.1mm
 Focal length tolerance: +/-0.5%
 Angle of incidence: 0 degree
 Transmission: >99.4%

Reflectance: <0.1% per surface

Absorption: <0.2% per surface

The following standard meniscus are available.

Part No.	Material	Diameter mm	ET mm	Coating	FL mm
FL-10.6-5.0ZLF25	ZnSe	12.7	2	AR/AR	25.4
FL-10.6-5.0ZLF38	ZnSe	12.7	2	AR/AR	38.1
FL-10.6-F38.1-D12.7-T2-MN-WT	ZnSe	12.7	2	AR/AR	38.1
FL-10.6-5.1ZLF100	ZnSe	13	2	AR/AR	100
FL-10.6-F100-D13-T2-MN-WT	ZnSe	13	2	AR/AR	100
FL-10.6-6.1ZLF48	ZnSe	15.5	2.5	AR/AR	48
FL-10.6-6.1ZLF110	ZnSe	15.5	2.5	AR/AR	110
FL-10.6-10ZLF25	ZnSe	25.4	2.5	AR/AR	25.4
FL-10.6-10ZLF38	ZnSe	25.4	2.5	AR/AR	38.1
FL-10.6-10ZLF51	ZnSe	25.4	2.5	AR/AR	50.8
FL-10.6-10ZLF63	ZnSe	25.4	2.5	AR/AR	63.5
FL-10.6-10ZLF76	ZnSe	25.4	2.5	AR/AR	76.2
FL-10.6-10ZLF95	ZnSe	25.4	2.5	AR/AR	95.3
FL-10.6-10ZLF102	ZnSe	25.4	2.5	AR/AR	101.6
FL-10.6-10ZLF110	ZnSe	25.4	2.5	AR/AR	110
FL-10.6-10ZLF127	ZnSe	25.4	2.5	AR/AR	127
FL-10.6-F127-D25.4-T2.5-MN-WT	ZnSe	25.4	2.5	AR/AR	127
FL-10.6-10ZLF152	ZnSe	25.4	2.5	AR/AR	152
FL-10.6-F152-D25.4-T2.5-MN-WT	ZnSe	25.4	2.5	AR/AR	152
FL-10.6-10ZLF200	ZnSe	25.4	2.5	AR/AR	200
FL-10.6-10ZLF221	ZnSe	25.4	2.24	AR/AR	221
FL-10.6-10ZLF508	ZnSe	25.4	2.5	AR/AR	508
FL-10.6-11ZLF25	ZnSe	28	3	AR/AR	25.4
FL-10.6-11GLF38	GaAs	28	2.5	Uncoated	38
FL-10.6-11ZLF38	ZnSe	28	3	AR/AR	38.1
FL-10.6-11ZLF50	ZnSe	28	3	AR/AR	50.8
FL-10.6-11HGP50	ZnSe	28	4.2	AR/AR	50.8
FL-10.6-11HGP63	ZnSe	28	4.2	AR/AR	63.5
FL-10.6-11ZLF63	ZnSe	28	3	AR/AR	63.5
FL-10.6-11GLC63	GaAs	28	1.8	AR/AR	63.5
FL-10.6-11ZLF76	ZnSe	28	3	AR/AR	76.2
FL-10.6-11ZLF89	ZnSe	28	3	AR/AR	89
FL-10.6-11ZLF90	ZnSe	28	3	AR/AR	90
FL-10.6-11ZLF95	ZnSe	28	3	AR/AR	95.3
FL-10.6-11HGP95	ZnSe	28	4.2	AR/AR	95.3
FL-10.6-11ZLF100	ZnSe	28	3	AR/AR	100
FL-10.6-11ZLF102	ZnSe	28	3	AR/AR	102
FL-10.6-11ZLF110	ZnSe	28	3	AR/AR	110
FL-10.6-11ZLF127	ZnSe	28	3	AR/AR	127
FL-10.6-11EHGP127	ZnSe	28	6.2	AR/AR	127
FL-10.6-11HGP127	ZnSe	28	4.2	AR/AR	127
FL-10.6-11HLF152	ZnSe	28	3	AR/AR	152
FL-10.6-11HLF190	ZnSe	28	3	AR/AR	190.5
FL-10.6-11HGP190	ZnSe	28	4.2	AR/AR	190.5
FL-10.6-11HLF254	ZnSe	28	3	AR/AR	254
FL-10.6-11HLF762	ZnSe	28	3	AR/AR	762
FL-10.6-11.8HLF750	ZnSe	30	3	AR/AR	750
FL-10.6-12.6HGP89	ZnSe	32	4.2	AR/AR	89
FL-10.6-VTE375	ZnSe	38.05	7.4	AR/AR	95.3
FL-10.6-VTE500	ZnSe	38.05	7.4	AR/AR	127
FL-10.6-VTE750	ZnSe	38.05	7.4	AR/AR	190.5
FL-10.6-VTE900	ZnSe	38.05	7.4	AR/AR	228.6
FL-10.6-VTE1000	ZnSe	38.05	7.4	AR/AR	254

FL-10.6-15ZLF38	ZnSe	38.05	2.4	AR/AR	38.1
FL-10.6-15ZLF50	ZnSe	38.05	3	AR/AR	50.8
FL-10.6-15HGP63	ZnSe	38.05	6.1	AR/AR	63.5
FL-10.6-15ZLF63	ZnSe	38.05	3	AR/AR	63.5
FL-10.6-15ZLF75	ZnSe	38.05	2.93	AR/AR	75
FL-10.6-15ZLF76	ZnSe	38.05	3	AR/AR	76.2
FL-10.6-15ZLF80	ZnSe	38.05	3	AR/AR	80
FL-10.6-15ZLF89	ZnSe	38.05	3	AR/AR	89
FL-10.6-15HGP95	ZnSe	38.05	6	AR/AR	95
FL-10.6-15ZLF95	ZnSe	38.05	3	AR/AR	95.3
FL-10.6-15ZLF100	ZnSe	38.05	3	AR/AR	100
FL-10.6-15ZLF127	ZnSe	38.05	3	AR/AR	127
FL-10.6-15EHGP127	ZnSe	38.05	7.8	AR/AR	127
FL-10.6-15HGP127	ZnSe	38.05	6.2	AR/AR	127
FL-10.6-15BYS127	ZnSe	38.05	9	AR/AR	127.1
FL-10.6-15HGP150	ZnSe	38.05	6.2	AR/AR	150
FL-10.6-15ZLF152	ZnSe	38.05	3	AR/AR	152
FL-10.6-15EHGP190-BE	ZnSe	38.05	7.87	AR/AR	190
FL-10.6-15HGP190	ZnSe	38.05	6.1	AR/AR	190.5
FL-10.6-15ZLF190	ZnSe	38.05	3	AR/AR	190.5
FL-10.6-15BYS190	ZnSe	38.05	9	AR/AR	190.7
FL-10.6-15BYS196	ZnSe	38.05	9	AR/AR	196
FL-10.6-15HGP254	ZnSe	38.05	6.3	AR/AR	254
FL-10.6-15ZLF254	ZnSe	38.05	3	AR/AR	254
FL-10.6-15ZLF345	ZnSe	38.05	3	AR/AR	345
FL-10.6-15ZLF508	ZnSe	38.05	3	AR/AR	508
FL-10.6-15ZLF750	ZnSe	38.05	3.06	AR/AR	750
FL-10.6-17.5HGP127	ZnSe	44.45	9	AR/AR	127
FL-10.6-17.5HGP190	ZnSe	44.45	9	AR/AR	190
FL-10.6-17.5ZLF127	ZnSe	44.5	3.5	AR/AR	127
FL-10.6-19.7GEN125	Ge	50	1.5	AR/AR-Ge	125
FL-10.6-19.7ZLF127	ZnSe	50	3.5	AR/AR	127
FL-10.6-19.7EHGP150	ZnSe	50	9.6	AR/AR	150
FL-10.6-20EHGP95	ZnSe	50.8	9.6	AR/AR	95
FL-10.6-20HGP127	ZnSe	50.8	7.87	AR/AR	127
FL-10.6-20ZLF127	ZnSe	50.8	3.5	AR/AR	127
FL-10.6-20EHGP127	ZnSe	50.8	9.6	AR/AR	127
FL-10.6-20EHGP190	ZnSe	50.8	9.6	AR/AR	190.5
FL-10.6-20ZLF190	ZnSe	50.8	3.5	AR/AR	190.5
FL-10.6-20EHGP198	ZnSe	50.8	9.62	AR/AR	198
FL-10.6-20EHGP254	ZnSe	50.8	9.6	AR/AR	254
FL-10.6-20GEM254	Ge	50.8	4	AR/AR-DUR	254

4. LMZ Series Meniscus ZnSe Lenses Coated AR-AR @ 10.6 μ m

This wide range of CO₂ plano-convex lenses have been prepared to fit most OEM, Industrial and Medical laser systems. All have been manufactured to high-quality laser specifications for high-power applications.

Made with laser grade zinc selenide with computer optimized anti-reflection coatings.

Specifications:

Material: ZnSe Laser Grade C.V.D. type

Diameter Tolerances: +0.000", -0.005"

Thickness: ± 0.010 "

Surface Figure: < 1/40 wavelength @ 10.6 μ m

Centration: < 0.001"

Focal Length Tolerance: $\pm 1.0\%$

Surface Quality: < 40/20 scratch-dig Laser Finish

Spectral Performance:

Standard AR Coating type Both Sides @ 10.6µm (AR)

Absorption: < 0.25 % total

Reflectance: < 0.20% per surface @ 10.6µm

Transmittance: > 99.0% typical

Ultra Low Absorption AR Coating type Both Sides @ 10.6µm (ULA)

Absorption: < 0.15 % total

Reflectance: < 0.25% per surface

Transmittance: > 99.0% typical

Dual Band AR Coating type Both Sides @ 10.6µm and .633µm (DBAR)

Absorption: < 0.30 % total

Reflectance: < 0.25% per surface @ 10.6µm

Transmittance: > 98.5% @ 10.6µm with > 90% @ .633µm

Model Number	Diameter	Focal Length	Edge Thickness
FL-10.6-LMZ-0707-ET2.0	0.750"	0.750"	0.080"
FL-10.6-LMZ-0710-ET2.0	0.750	1.00	0.080
FL-10.6-LMZ-0712-ET2.0	0.750	1.20	0.080
FL-10.6-LMZ-0715-ET2.0	0.750	1.50	0.080
FL-10.6-LMZ-0720-ET2.0	0.750	2.00	0.080
FL-10.6-LMZ-0725-ET2.0	0.750	2.50	0.080
FL-10.6-LMZ-0730-ET2.0	0.750	3.00	0.080
FL-10.6-LMZ-0740-ET2.0	0.750	4.00	0.080
FL-10.6-LMZ-1010-ET2.0	1.00	1.00	0.080
FL-10.6-LMZ-1015-ET3.0	1.00	1.50	0.120
FL-10.6-LMZ-1020-ET3.0	1.00	2.0	0.120
FL-10.6-LMZ-1030-ET3.0	1.00	3.00	0.120
FL-10.6-LMZ-1050-ET3.0	1.00	5.00	0.120
FL-10.6-LMZ-1075-ET3.0	1.00	7.50	0.120
FL-10.6-LMZ-1115-ET2.8	1.10	1.50	0.110
FL-10.6-LMZ-1125-ET3.0	1.10	2.50	0.120
FL-10.6-LMZ-1125-ET6.0	1.10	2.50	0.236
FL-10.6-LMZ-1135-ET3.0	1.10	3.50	0.120
FL-10.6-LMZ-1138-ET2.8	1.10	3.75	0.110
FL-10.6-LMZ-1138-ET3.0	1.10	3.75	0.120
FL-10.6-LMZ-1150-ET2.8	1.10	5.0	0.110
FL-10.6-LMZ-1150-ET3.0	1.10	5.0	0.120
FL-10.6-LMZ-1150-ET4.0	1.10	5.0	0.160
FL-10.6-LMZ-1150-ET6.0	1.10	5.0	0.236
FL-10.6-LMZ-1175-ET2.8	1.10	7.50	0.110
FL-10.6-LMZ-1175-ET4.0	1.10	7.50	0.160
FL-10.6-LMZ-1175-ET6.0	1.10	7.50	0.236
FL-10.6-LMZ-11A0-ET2.8	1.10	10.0	0.110
FL-10.6-LMZ-1520-ET3.0	1.50	2.0	0.120
FL-10.6-LMZ-1525-ET6.0	1.50	2.50	0.236
FL-10.6-LMZ-1530-ET3.0	1.50	3.0	0.120
FL-10.6-LMZ-1538-ET6.0	1.50	3.8	0.236
FL-10.6-LMZ-1538-ET7.4	1.50	3.8	0.291
FL-10.6-LMZ-1550-ET3.0	1.50	5.0	0.120
FL-10.6-LMZ-1550-ET4.0	1.50	5.0	0.160
FL-10.6-LMZ-1550-ET6.0	1.50	5.0	0.236
FL-10.6-LMZ-1550-ET7.4	1.50	5.0	0.291
FL-10.6-LMZ-1550-ET9.0	1.50	5.0	0.354
FL-10.6-LMZ-1575-ET6.0	1.50	7.50	0.236
FL-10.6-LMZ-1575-ET7.4	1.50	7.50	0.291
FL-10.6-LMZ-1575-ET9.0	1.50	7.50	0.354
FL-10.6-LMZ-1590-ET7.4	1.50	9.0	0.291
FL-10.6-LMZ-15A0-ET7.4	1.50	10.0	0.291
FL-10.6-LMZ-2050-ET9.7	2.0	5.0	0.380
FL-10.6-LMZ-2075-ET9.7	2.0	7.50	0.380

FL-10.6-LMZ-20A0-ET9.7	2.0	10.0	0.380
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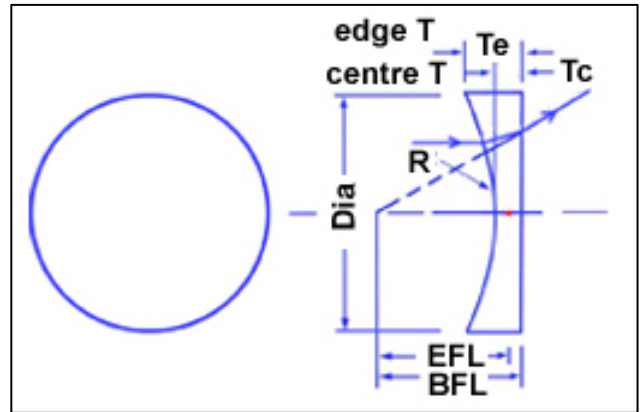
5. CO2 Laser Focusing Lenses (Plano-Concave Lenses)

Specifications:

Material: ZnSe Laser Grade C.V.D. type
 Diameter Tolerances: +0.000", -0.005"
 Thickness: ± 0.010 "
 Surface Figure: $< 1/40$ wavelength @ 10.6 μm
 Centration: < 0.001 "
 Focal Length Tolerance: $\pm 1.0\%$
 Surface Quality: $< 40/20$ scratch-dig Laser Finish

Spectral Performance:

Standard AR Coating type Both Sides @ 10.6 μm (AR)
 Absorption: $< 0.25\%$ total
 Reflectance: $< 0.20\%$ per surface @ 10.6 μm
 Transmittance: $> 99.0\%$ typical
 Ultra Low Absorption AR Coating type Both Sides @ 10.6 μm (ULA)
 Absorption: $< 0.15\%$ total
 Reflectance: $< 0.25\%$ per surface
 Transmittance: $> 99.0\%$ typical
 Dual Band AR Coating type Both Sides @ 10.6 μm and .633 μm (DBAR)
 Absorption: $< 0.30\%$ total
 Reflectance: $< 0.25\%$ per surface @ 10.6 μm
 Transmittance: $> 98.5\%$ @ 10.6 μm with $> 90\%$ @ .633 μm



Part number	WL um	FL mm/inch	BFL mm	Dia. mm/inch	Edge T mm
FL-10.6-F(20)-D12-T2.0-CC	10.6	-20mm	-20.6	12	2.0

Model Number	Diameter	Focal Length	Edge Thickness
FL-10.6-LPCZ-0510-ET3.2	0.500"	-1.000"	0.125"
FL-10.6-LPCZ-0514-ET2.5	0.500"	-1.390"	0.100"
FL-10.6-LPCZ-0520-ET2.0	0.500"	-2.000"	0.080"
FL-10.6-LPCZ-0525-ET2.5	0.500"	-2.500"	0.100"
FL-10.6-LPCZ-0540-ET2.5	0.500"	-4.000"	0.100"
FL-10.6-LPCZ-0610-ET4.6	0.600"	-1.000"	0.180"
FL-10.6-LPCZ-0620-ET3.0	0.600"	-2.000"	0.120"
FL-10.6-LPCZ-0625-ET3.0	0.600"	-2.500"	0.120"
FL-10.6-LPCZ-0640-ET2.4	0.600"	-4.000"	0.095"
FL-10.6-LPCZ-0710-ET5.0	0.750"	-1.000"	0.200"
FL-10.6-LPCZ-0715-ET2.0	0.750"	-1.500"	0.080"
FL-10.6-LPCZ-0720-ET2.5	0.750"	-2.000"	0.100"
FL-10.6-LPCZ-0725-ET2.5	0.750"	-2.500"	0.100"
FL-10.6-LPCZ-0750-ET2.0	0.750"	-5.000"	0.080"
FL-10.6-LPCZ-1014-ET5.0	1.000"	-1.390"	0.200"
FL-10.6-LPCZ-1025-ET4.0	1.000"	-2.500"	0.160"
FL-10.6-LPCZ-1115-ET5.0	1.100"	-1.500"	0.200"
FL-10.6-LPCZ-1125-ET4.0	1.100"	-2.500"	0.160"
FL-10.6-LPCZ-1150-ET3.0	1.100"	-5.000"	0.120"

6. CO2 Laser Focusing Lenses (Aspheric Lenses)

Aspheric Lenses are intended as single-element alternatives to the doublet series and high-performance alternatives to short focal length meniscus lenses.

- Diffraction limited performance by correcting the spherical aberration that is present with a "best form" meniscus lens
- More tolerant to small angular misalignments of the beam than plano-convex lenses
- Can be supplied mounted if required

Specifications:

- Diameter tolerance: +0/-0.1mm
- Focal length tolerance: $\pm 0.5\%$
- Transmission: >99.4%
- Reflectance: 0.1% per surface
- Absorption per surface: Typically <0.2%

Part No.	Material	Diameter	ET	Coating	FL
LF-10.6-10ZAL25.4	ZnSe	25.4mm	3mm	AR/AR	25.4mm
LF-10.6-11ZAL25.4	ZnSe	28mm	3mm	AR/AR	25.4mm
LF-10.6-11ZAL38.1	ZnSe	28mm	3mm	AR/AR	38.1mm
LF-10.6-11ZAL50.8	ZnSe	28mm	3mm	AR/AR	50.8mm
LF-10.6-11ZAL63.5	ZnSe	28mm	3mm	AR/AR	63.5mm
LF-10.6-15ZAL127	ZnSe	38.05mm	3mm	AR/AR	127mm
LF-10.6-15ZAL38.1	ZnSe	38.05mm	3mm	AR/AR	38.1mm
LF-10.6-15ZAL50.8	ZnSe	38.05mm	3mm	AR/AR	50.8mm
LF-10.6-15ZAL63.5	ZnSe	38.05mm	3mm	AR/AR	63.5mm
LF-10.6-15ZAL95.3	ZnSe	38.05mm	3mm	AR/AR	95.3mm

7. CO2 Laser Focusing Lenses Used in Branded Lasers

AMADA Focusing Lenses

Our Part No.	Focusing Lenses Part Description
FL-10.6-F127-D38.1-T7.62	(PL-CX) Dia. 1.5" / FL: 5.0" / ET: .300" (7.62mm)
FL-10.6-F190.5-D38.1-T8	(PL-CX) Dia. 1.5" / FL: 7.5" / ET: .315" (8.00mm)
FL-10.6-F127-D50.8-T7.87	(PL-CX) Dia. 2.0" / FL: 5.0" / ET: .310" (7.87mm)
FL-10.6-F190.5-D50.8-T9.65	(PL-CX) Dia. 2.0" / FL: 7.5" / ET: .380" (9.65mm)
FL-10.6-F190.5-D50.8-T7.87	(PL-CX) Dia. 2.0" / FL: 7.5" / ET: .310" (7.87mm)

Bystronic Focusing Lenses

Our Part No.	Focusing Lenses Part Description
FL-10.6-F127-D38.1-T5.99-MN	(Men) Dia. 1.5" / FL: 5.0" / ET: .236" (5.99mm)
FL-10.6-F127-D38.1-T8.99-MN	(Men) Dia. 1.5" / FL: 5.0" / ET: .354" (8.99mm)
FL-10.6-F190.5-D38.1-T5.99-MN	(Men) Dia. 1.5" / FL: 7.5" / ET: .236" (5.99mm)
FL-10.6-F190.5-D38.1-T8.99-MN	(Men) Dia. 1.5" / FL: 7.5" / ET: .354" (8.99mm)

CINCINNATI Focusing Lenses

Our Part No.	Focusing Lenses Part Description
FL-10.6-F130.3-D38.1-T7.11	(PL-CX) Dia. 1.5" / FL: 5.13" / ET: .280" (7.11mm)
FL-10.6-F193.8-D38.1-T7.62	(PL-CX) Dia. 1.5" / FL: 7.63" / ET: .300" (7.62mm)
FL-10.6-F190.5-D50.8-T9.65	(PL-CX) Dia. 2.0" / FL: 7.50" / ET: .380" (9.65mm)
FL-10.6-F127-D50.8-T9.65	(PL-CX) Dia. 2.0" / FL: 5.00" / ET: .380" (9.65mm)

MAZAK Focusing Lenses

Our Part No.	Focusing Lenses Part Description
FL-10.6-F127-D38.1-T5.99	(PL-CX) Dia. 1.5" / FL: 5.0" / ET: .236" (5.99mm)
FL-10.6-F127-D38.1-T7.97	(PL-CX) Dia. 1.5" / FL: 5.0" / ET: .310" (7.97mm)
FL-10.6-F127-D50.8-T7.87	(PL-CX) Dia. 2.0" / FL: 5.0" / ET: .314" (7.87mm)
FL-10.6-F127-D50.8-T9.65	(PL-CX) Dia. 2.0" / FL: 5.0" / ET: .380" (9.65mm)
FL-10.6-F190.5-D50.8-T7.87	(PL-CX) Dia. 2.0" / FL: 7.5" / ET: .314" (7.87mm)
FL-10.6-F190.5-D50.8-T9.65	(PL-CX) Dia. 2.0" / FL: 7.5" / ET: .380" (9.65mm)

Mitsubishi Focusing Lenses

Our Part No.	Part Description
FL-10.6-F190.5-D50.8-T7.87	(PL-CX) Dia. 2.0" / FL: 7.5" / ET: .310" (7.87mm)
FL-10.6-F190.5-D38.1-T8	(PL-CX) Dia. 1.5" / FL: 7.5" / ET: .315" (8.00mm)

FL-10.6-F127-D50.8-T7.87	(PL-CX) Dia. 2.0" / FL: 5.0" / ET: .310" (7.87mm)
FL-10.6-F190.5-D50.8-T7.87	(PL-CX) Dia. 2.0" / FL: 7.5" / ET: .310" (7.87mm)
FL-10.6-F190.5-D50.8-T9.65	(PL-CX) Dia. 2.0" / FL: 7.5" / ET: .380" (9.65mm)

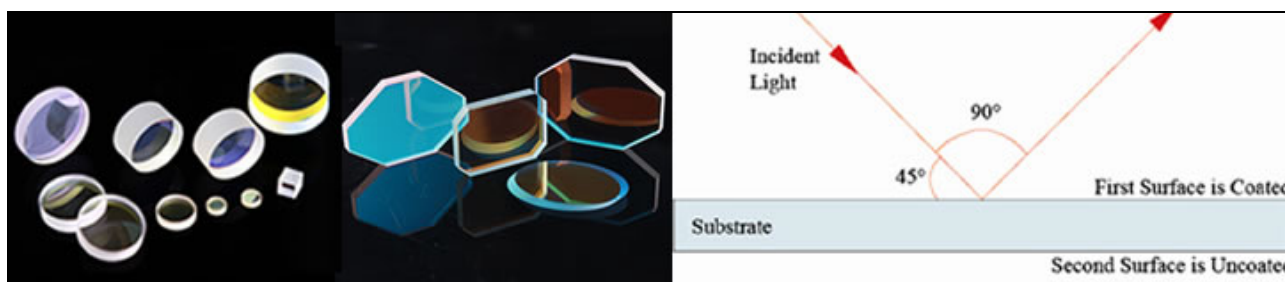
TRUMPF Focusing Lenses

Our Part No.	Part Description
FL-10.6-F127-D38.1-T7.39-MN	(Meniscus) Dia. 1.5" / FL: 5.0" / ET: .291" (7.39mm)
FL-10.6-F190.5-D38.1-T7.39-MN	(Meniscus) Dia. 1.5" / FL: 7.5" / ET: .291" (7.39mm)
FL-10.6-F190.5-D38.1-T7.62	(PL-CX) Dia. 1.5" / FL: 7.5" / ET: .300" (7.62mm)
FL-10.6-F190.5-D38.1-T7.75	(PL-CX) Dia. 1.5" / FL: 7.5" / ET: .305" (7.75mm)
FL-10.6-F127-D38.1-T6.2	(PL-CX) Dia. 1.5" / FL: 5.0" / ET: .244" (6.20mm)

Laser Optical Mirrors

1. BK7 Substrate Mirrors

The BK7 substrate comes with $1/2\lambda$ or $1/10\lambda$ surface accuracy. The common laser wavelength available includes 355nm, 532nm, 650nm, 808nm, 980nm, 1064nm, 1319nm, and 1550nm. The laser reflective coating with 0 to 45 degree AOI incident light makes use of the dielectric coating, offering high reflectivity of up to 99.9% as well as high damage threshold. This product is ideally suitable for beam deflection and folding applications. Custom design and fabrication are available upon request.



	Standard Substrate	High Precision Substrate
Type	Plano/plano	Plano/plano
Material	BK7	BK7
Diameter tolerance	+0/-0.1mm	+0/-0.1mm
Thickness tolerance	±0.2mm	±0.1mm
Flatness	$\lambda/2$ @632.8nm	$\lambda/10$ @632.8nm
Clear aperture	90%	90%
Surface quality	40-20	20-10
Parallelism	<1arc min	<10arc min
Bevel	<0.25mm x 45 °	<0.25mm x 45 °
Design wavelength	587.6nm	587.6nm

Standard Substrate			High Precision Substrate		
Part No.	D (mm)	T (mm)	Part No.	D (mm)	T (mm)
STJ-XXXX-MB-6.0-3-A	6	3	STJ-XXXX-MHB-6.0-3-A	6.0	3.0
STJ-XXXX-MB-10.0-3-A	10	3	STJ-XXXX-MHB-10.0-3-A	10.0	3.0
STJ-XXXX-MB-12.7-3-A	12.7	3	STJ-XXXX-MHB-12.7-3-A	12.7	3.0
STJ-XXXX-MB-15.0-3-A	15	3	STJ-XXXX-MHB-15.0-3-A	15.0	3.0
STJ-XXXX-MB-15.0-4-A	15	4	STJ-XXXX-MHB-15.0-4-A	15.0	4.0
STJ-XXXX-MB-20.0-4-A	20	4	STJ-XXXX-MHB-20.0-4-A	20.0	4.0
STJ-XXXX-MB-20.0-5-A	20	5	STJ-XXXX-MHB-20.0-5-A	20.0	5.0
STJ-XXXX-MB-25.0-4-A	25	4	STJ-XXXX-MHB-25.0-4-A	25.0	4.0
STJ-XXXX-MB-25.4-4-A	25.4	4	STJ-XXXX-MHB-25.4-4-A	25.4	4.0
STJ-XXXX-MB-30.0-4-A	30	4	STJ-XXXX-MHB-30.0-4-A	30.0	4.0
STJ-XXXX-MB-30.30-4-A	30x30	4	STJ-XXXX-MHB-30.30-4-A	30x30	4.0
STJ-XXXX-MB-40.0-3-A	40	3	STJ-XXXX-MHB-40.0-3-A	40.0	3.0
STJ-XXXX-MB-40.0-4-A	40	4	STJ-XXXX-MHB-40.0-4-A	40.0	4.0
STJ-XXXX-MB-42.0-3-A	42	3	STJ-XXXX-MHB-42.0-3-A	42.0	3.0
STJ-XXXX-MB-48.0-3-A	48	3	STJ-XXXX-MHB-48.0-3-A	48.0	3.0
STJ-XXXX-MB-50.0-4-A	50	4	STJ-XXXX-MHB-50.0-4-A	50.0	4.0
STJ-XXXX-MB-50.8-4-A	50.8	4	STJ-XXXX-MHB-50.8-4-A	50.8	4.0

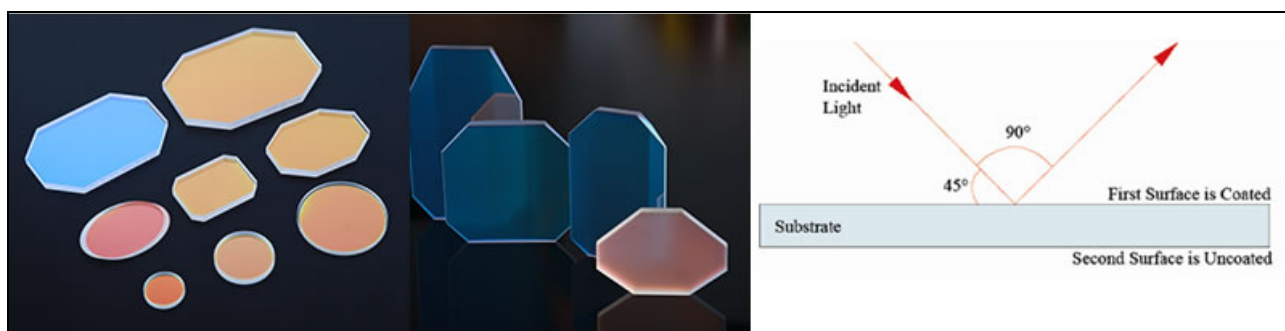
Ordering Information:

When ordering, please select a part number and then indicate (1) laser wavelength (XXXX in nm) and AOI (angle of incident light, A). The AOI is 0 or 45 degree in general. For example, STJ-1064-MB-50.8-4-45 is a K7 standard substrate 1064nm mirror with AOI 45 degree.

2. Fused Silica Substrate Mirrors

Our $1/2\lambda$ standard and $1/10\lambda$ high precision mirror substrates are exquisitely made with UV-grade synthetic fused silica. They have the features with outstanding thermal properties, exceptional purity, and excellent environmental durability for rigorous applications and are an ideal choice for interferometry, imaging systems, laser applications, optical path folding, as well as auto-collimation. Coated or uncoated mirrors are available. The second surface (S2) that is uncoated is highly polished to achieve the perfect finish as the optical windows.

The common laser wavelength that we provided includes 266nm, 355nm, 405nm, 468nm, 532nm, 650nm, 808nm, 980nm, 1064nm, 1319nm, and 1550nm. The laser reflective coating with 0 to 45 degree AOI incident light makes use of the dielectric coating, coming with high damage threshold and high reflectivity of up to 99.9%. This product is designed for beam reflection and folding applications. Furthermore, we can design coatings according to our customers' needs.



	Standard Substrate	High Precision Substrate
Type	Plano/plano	Plano/plano
Material	Fused silica	Fused silica
Diameter tolerance	+0/-0.1mm	+0/-0.1mm
Thickness tolerance	±0.2mm	±0.1mm
Flatness	$\lambda/2$ @632.8nm	$\lambda/10$ @632.8nm
Clear aperture	90%	90%
Surface quality	40-20	20-10
Parallelism	<1arc min	<10arc min
Bevel	<0.25mm x 45 °	<0.25mm x 45 °
Design wavelength	587.6nm	587.6nm

Standard Substrate			High Precision Substrate		
Part No.	D (mm)	T (mm)	Part No.	D (mm)	T (mm)
STJ-XXXX-MJ-6.0-3-A	6	3	STJ-XXXX-MHJ-6.0-3-A	6	3
STJ-XXXX-MJ-10.0-3-A	10	3	STJ-XXXX-MHJ-10.0-3-A	10	3
STJ-XXXX-MJ-12.7-3-A	12.7	3	STJ-XXXX-MHJ-12.7-3-A	12.7	3
STJ-XXXX-MJ-15.0-3-A	15	3	STJ-XXXX-MHJ-15.0-3-A	15	3
STJ-XXXX-MJ-15.0-4-A	15	4	STJ-XXXX-MHJ-15.0-4-A	15	4
STJ-XXXX-MJ-20.0-4-A	20	4	STJ-XXXX-MHJ-20.0-4-A	20	4
STJ-XXXX-MJ-20.0-5-A	20	5	STJ-XXXX-MHJ-20.0-5-A	20	5
STJ-XXXX-MJ-25.0-4-A	25	5	STJ-XXXX-MHJ-25.0-4-A	25	5
STJ-XXXX-MJ-25.4-4-A	25.4	4	STJ-XXXX-MHJ-25.4-4-A	25.4	4
STJ-XXXX-MJ-30.0-4-A	30	4	STJ-XXXX-MHJ-30.0-4-A	30	4
STJ-XXXX-MJ-30.30-4-A	30x30	4	STJ-XXXX-MHJ-30.30-4-A	30x30	4
STJ-XXXX-MJ-40.0-3-A	40	3	STJ-XXXX-MHJ-40.0-3-A	40	3
STJ-XXXX-MJ-40.0-4-A	40	4	STJ-XXXX-MHJ-40.0-4-A	40	4
STJ-XXXX-MJ-42.0-3-A	42	4	STJ-XXXX-MHJ-42.0-3-A	42	4
STJ-XXXX-MJ-48.0-3-A	48	4	STJ-XXXX-MHJ-48.0-3-A	48	4
STJ-XXXX-MJ-50.0-4-A	50	4	STJ-XXXX-MHJ-50.0-4-A	50	4
STJ-XXXX-MJ-50.8-4-A	50.8	4	STJ-XXXX-MHJ-50.8-4-A	50.8	4

Ordering Information:

When ordering, please select a part number and then indicate (1) laser wavelength (XXXX in nm) and AOI (angle of incident light, A). The AOI is 0 or 45 degree in general. For example, STJ-1064-MJ-50.8-4-45 is a K7 standard substrate 1064nm mirror with AOI 45 degree.

Si Mirrors

Silicon mirrors in a huge range of sizes are available, with a selection of different coatings to suite you application.

- Advanced manufacturing methods
- Latest ultra-low absorption coatings
- Highest quality substrates

Part No.	M	Dia mm	ET mm	A deg	T %	R %	S2 ROC m	Coating
LM-SI-5.9SIS4-03	Si	15	4	45	3	99.93	3	SuperMax
LM-SI-7.5SID2-00	Si	19	2	45	0	99	flat	SiDual
LM-SI-7.5SIS3-00	Si	19	3	45	0	99.93	flat	SuperMax
LM-SI-7.5SIS3-05	Si	19	3	45	0	99.93	5	SuperMax
LM-SI-7.5SIS3-07	Si	19	3	45	0	99.93	7	SuperMax
LM-SI-7.5SIS4-05	Si	19	4	45	0	99.93	5	SuperMax
LM-SI-7.5SIS5-075	Si	19	5	45	0	99.93	0.75	SuperMax
LM-SI-10SIF3-00	Si	25.4	3	45	0	99	flat	PFM
LM-SI-10SIF5-00	Si	25.4	5	45	0	99	flat	PFM
LM-SI-10SIS3-00	Si	25.4	3	45	0	99.93	flat	SuperMax
LM-SI-10SIS3-05	Si	25.4	3	45	0	99.93	5	SuperMax
LM-SI-10SIS3-10	Si	25.4	3	45	0	99.93	10	SuperMax
LM-SI-10SIS4-00	Si	25.4	4	45	0	99.93	flat	SuperMax
LM-SI-10SIS5-00	Si	25.4	5	45	0	99.93	flat	SuperMax
LM-SI-11SIS3-00	Si	28	3	45	0	99.93	flat	SuperMax
LM-SI-11SIS6-00	Si	28	6	45	0	99.93	flat	SuperMax
LM-SI-15SIS6.3-07	Si	38.05	6.3	45	0	99.93	7	SuperMax
LM-SI-15SIS6.3-7M	Si	38.05	6.3	45	0	99.93	7.5	SuperMax
LM-SI-15SIS6-00	Si	38.05	6	45	0	99.93	flat	SuperMax
LM-SI-15SIS9.5-00	Si	38.05	9.5	45	0	99.93	flat	SuperMax
LM-SI-15SIS9.7-00	Si	38.05	9.7	45	0	99.93	flat	SuperMax
LM-SI-15SID-00	Si	38.05	4	45	0	99	flat	SiDual
LM-SI-15SIF4-00	Si	38.05	4	45	0	99	flat	PFM
LM-SI-15SIS4-10CC	Si	38.05	4	45	0	99.93	10	SuperMax
LM-SI-15SIS5-00	Si	38.05	5	45	0	99.93	flat	SuperMax
LM-SI-15SIS6.3-00	Si	38.1	6.3	45	0	99.93	flat	SuperMax
LM-SI-15SIS6.6-00	Si	38.1	6.6	45	0	99.93	flat	SuperMax
LM-SI-16.1SIS5-00	Si	41	5	45	0	99.93	flat	SuperMax
LM-SI-17.5SIS9.5-00	Si	44.45	9.5	45	0	99.93	flat	SuperMax
LM-SI-17.5SIS9-00	Si	44.5	9	45	0	99.93	flat	SuperMax
LM-SI-17.5SIS4-00	Si	44.5	4	45	0	99.93	flat	SuperMax
LM-SI-19.7SIS10-00	Si	50	10	45	0	98.6	flat	SuperMax
LM-SI-19.7SIS5-00	Si	50	5	45	0	98.6	flat	SuperMax
LM-SI-20SIF10-00	Si	50.8	10	45	0	99	flat	PFM
LM-SI-20SIS10-00	Si	50.8	10.2	45	0	99.93	flat	SuperMax
LM-SI-20SIS10-00MA	Si	50.8	10	45	0	99.93	flat	SuperMax
LM-SI-20SIS5-00	Si	50.8	5.1	45	0	99.93	flat	SuperMax
LM-SI-20SIS9.5-00	Si	50.8	9.5	45	0	99.93	flat	SuperMax
LM-SI-26.8SIS20-00M	Si	68	20	45	0	99.93	flat	SuperMax
LM-SI-30SIS6.35-00	Si	76.2	6.35	45	0	99.93	flat	SuperMax
LM-SI-30SMA12.7-00	Cu	76.2	12.7	45	0	98.6	flat	SuperMax

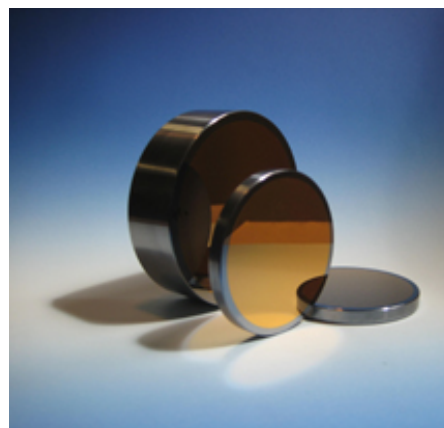
Remark: M: material; A(deg): angle of incidence; ET: edge thickness; T(%): transmission; R (%): reflectance; ROC: radius of curvature.

Turning Mirrors, Silicon

These turning mirrors are used in CO2 laser beam delivery systems. Silicon is the most commonly used mirror substrate due to its good "figure of merit" properties. We offer them with a variety of metal and dielectric coatings.

- TMS-EM Turning Mirrors Enhanced Metal for CO2 10.6 μm Reflectance coating
- 45° Angle Of Incidence
- Coated: Reflectance > 99.6% average @ 10.6 μm
- Absorption: < .30% @ 10.6 μm

Model Number	Diameter	Thickness
LM-SI-TMS-0512-EM	0.500"	0.120"
LM-SI-TMS-0712-EM	0.750"	0.120"
LM-SI-TMS-0912-EM	0.875"	0.120"
LM-SI-TMS-1012-EM	1.000"	0.120"
LM-SI-TMS-1112-EM	1.100"	0.120"
LM-SI-TMS-1512-EM	1.500"	0.120"
LM-SI-TMS-1516-EM	1.500"	0.160"
LM-SI-TMS-1816-EM	1.750"	0.160"
LM-SI-TMS-2020-EM	2.000"	0.200"
LM-SI-TMS-2525-EM	2.500"	0.250"
LM-SI-TMS-3025-EM	3.000"	0.250"
LM-SI-TMS-4035-EM	4.000"	0.350"



Turning Mirrors, Silicon Dual-Band Reflector for CO2 + Red Laser Diode Reflectance

- TMS-DBMR Turning Mirrors Silicon with Dual Band Max Reflectance coating
- Coated: Reflectance > 99.7% average @ 10.6 μm
- Reflectance: > 85% average for .633 μm and 650 nm
- 45° Angle Of Incidence
- Absorption: < 0.30% @ 10.6 μm

Model Number	Diameter	Thickness
LM-SI-TMS-0512-DBMR	0.500"	0.120"
LM-SI-TMS-0712-DBMR	0.750"	0.120"
LM-SI-TMS-0912-DBMR	0.875"	0.120"
LM-SI-TMS-1012-DBMR	1.000"	0.120"
LM-SI-TMS-1112-DBMR	1.100"	0.120"
LM-SI-TMS-1512-DBMR	1.500"	0.120"
LM-SI-TMS-1516-DBMR	1.500"	0.160"
LM-SI-TMS-1816-DBMR	1.750"	0.160"
LM-SI-TMS-2020-DBMR	2.000"	0.200"
LM-SI-TMS-2525-DBMR	2.500"	0.250"
LM-SI-TMS-3025-DBMR	3.000"	0.250"
LM-SI-TMS-4035-DBMR	4.000"	0.350"

Phase Retardation Reflectors : Silicon for CO2 Lasers and 10.6 μm

These mirrors create a 90° Phase Shift with the aid of specially constructed thin film coating layers applied to the surface, when hit with a linear polarized beam at 45° to the plane of incidence. Commonly called Phase Shifters, Polarizers, or Circular Polarizing Mirrors, they transform the incoming beam into a circular polarized state. They typically are only used external to the laser cavity as a beam delivery mirror. These operate only with a true 10.6 μm laser wavelength and will not work at other wavelengths such as 9.2 or 9.6 μm without special modifications to the thin film coating design. We offer non-standard wavelength Phase Retardation Reflectors at these other wavelengths as custom parts.

- Phase Shift: 90° \pm 3.0° between p and s polarization for 10.6 μm operation only @ 45° Angle Of Incidence
- Reflectance: > 99.0% average @ 10.6 μm

- Absorption: < 0.40% @ 10.6 μ m
- Coating optimized to create 90° phase shift from a linear polarized beam. Used in beam delivery systems where cutting circles in materials is required.

Part Number	Diameter	Thickness
LM-SI-PRRS-0712-90	0.750"	0.120"
LM-SI-PRRS-1012-90	1.000"	0.120"
LM-SI-PRRS-1112-90	1.100"	0.120"
LM-SI-PRRS-1516-90	1.500"	0.160"
LM-SI-PRRS-1816-90	1.75	0.160"
LM-SI-PRRS-2020-90	2.000"	0.200"
LM-SI-PRRMS-5010-90	50 mm	10 mm
LM-SI-PRRS-2038-90	2.000"	0.375"
LM-SI-PRRS-2525-90	2.500"	0.250"
LM-SI-PRRS-3025-90	3.000"	0.250"
LM-SI-PRRS-3050-90	3.000"	0.500"
LM-SI-PRRMS-7515-90	75 mm	15 mm

Zero Phase Reflectors: Silicon for CO₂ Lasers and 10.6 μ m

- Phase Shift: <2.0° between p and s polarization for 10.6 μ m operation only @ 45° Angle Of Incidence
- Reflectance: > 99.6% average @ 10.6 μ m
- Absorption: < 0.40% @ 10.6 μ m
- Coating optimized to maintain low phase shift in beam delivery systems where a 90° phase retarder exists to maintain the circular polarization.

Model Number	Diameter	Thickness
LM-SI-ZPRS-0712-0	0.750"	0.120"
LM-SI-ZPRS-1012-0	1.000"	0.120"
LM-SI-ZPRS-1112-0	1.100"	0.120"
LM-SI-ZPRS-1516-0	1.500"	0.160"
LM-SI-ZPRS-1816-0	1.750"	0.160"
LM-SI-ZPRS-2020-0	2.000"	0.200"
LM-SI-ZPR-50-5-10-0	50 mm	10 mm
LM-SI-ZPRS-2038-0	2.000"	0.375"
LM-SI-ZPRS-2525-0	2.500"	0.250"
LM-SI-ZPRS-3025-0	3.000"	0.250"
LM-SI-ZPRS-3050-0	3.000"	0.500"
LM-SI-ZPR-75-5-15-0	75 mm	15 mm
LM-SI-ZPRS-4035-0	4.000"	0.350"

Total Reflectors: Silicon Concave for CO₂ Lasers and 10.6 μ m

- Turning Mirrors Silicon with Dual Band Max Reflectance coating
- Coated: Reflectance > 99.6% average @ 10.6 μ m
- Operation at normal incidence (0°)
- Reflectance: > 85% average for 633 nm and 650 nm
- Absorption: < 0.30% @ 10.6 μ m
- Clear Aperture: 90% of diameter

Model Number	Diameter	Thickness	Concave Radius (meters)
LM-SI-TRCCS-0512-2-EM	0.500"	0.120"	2 meter
LM-SI-TRCCS-0512-3-EM	0.500"	0.120"	3 meter
LM-SI-TRCCS-0512-5-EM	0.500"	0.120"	5 meter
LM-SI-TRCCS-0512-7.5-EM	0.500"	0.120"	7.5 meter
LM-SI-TRCCS-0512-10-EM	0.500"	0.120"	10 meter
LM-SI-TRCCS-0712-2-EM	0.750"	0.120"	2 meter
LM-SI-TRCCS-0712-3-EM	0.750"	0.120"	3 meter
LM-SI-TRCCS-0712-5-EM	0.750"	0.120"	5 meter
LM-SI-TRCCS-0712-6-EM	0.750"	0.120"	6 meter

LM-SI-TRCCS-0712-7.5-EM	0.750"	0.120"	7.5 meter
LM-SI-TRCCS-0712-10-EM	0.750"	0.120"	10 meter
LM-SI-TRCCS-1012-2-EM	1.00"	0.120"	2 meter
LM-SI-TRCCS-1012-3-EM	1.00"	0.120"	3 meter
LM-SI-TRCCS-1012-5-EM	1.00"	0.120"	5 meter
LM-SI-TRCCS-1012-7.5-EM	1.00"	0.120"	7.5 meter
LM-SI-TRCCS-1012-10-EM	1.00"	0.120"	10 meter
LM-SI-TRCCS-1012-20-EM	1.00"	0.120"	20 meter
LM-SI-TRCCS-1112-2-EM	1.10"	0.120"	2 meter
LM-SI-TRCCS-1112-3-EM	1.10"	0.120"	3 meter
LM-SI-TRCCS-1112-5-EM	1.10"	0.120"	5 meter
LM-SI-TRCCS-1112-7.5-EM	1.10"	0.120"	7.5 meter
LM-SI-TRCCS-1112-10-EM	1.10"	0.120"	10 meter
LM-SI-TRCCS-1112-20-EM	1.10"	0.120"	20 meter
LM-SI-TRCCS-1516-2-EM	1.50"	0.160"	2 meter
LM-SI-TRCCS-1516-3-EM	1.50"	0.160"	3 meter
LM-SI-TRCCS-1516-5-EM	1.50"	0.160"	5 meter
LM-SI-TRCCS-1516-7.5-EM	1.50"	0.160"	7.5 meter
LM-SI-TRCCS-1516-10-EM	1.50"	0.160"	10 meter
LM-SI-TRCCS-1516-20-EM	1.50"	0.160"	20 meter
LM-SI-TRCCS-2020-2-EM	2.00"	0.200"	2 meter
LM-SI-TRCCS-2020-3-EM	2.00"	0.200"	3 meter
LM-SI-TRCCS-2020-5-EM	2.00"	0.200"	5 meter
LM-SI-TRCCS-2020-7.5-EM	2.00"	0.200"	7.5 meter
LM-SI-TRCCS-2020-10-EM	2.00"	0.200"	10 meter
LM-SI-TRCCS-2020-20-EM	2.00"	0.200"	20 meter

Cu Mirrors

Copper mirrors in a huge range of sizes are available, with a selection of different coatings to suite you application.

- Advanced manufacturing methods
- Latest ultra-low absorption coatings
- Highest quality substrates



Part No.	M	Dia mm	ET mm	A deg	T %	R %	S2 ROC m	Coating
LM-CU-11SMA6-00	Cu	28	6	45	0	99.93	flat	SuperMax
LM-CU-15NCA8-00	Cu	38	8	45	0	99.93	flat	NiCu
LM-CU-15NCW15-00	Cu	38	15	45	0	98.6	flat	NiCu
LM-CU-D38-T10-A45	Cu	38	10	45	0	98.6	flat	NiCu
LM-CU-15NCA10-00	Cu	38	6	45	0	98.6	flat	NiCu
LM-CU-15NCA6-00	Cu	38	6	45	0	98.6	flat	SuperMax
LM-CU-15SMA6-00	Cu	38	6	45	0	99.93	flat	SuperMax
LM-CU-15SMA6-15	Cu	38.05	6	45	0	99.93	15	SuperMax
LM-CU-19.7NCA10-00	Cu	50	10	45	0	98.6	flat	NiCu
LM-CU-19.7NCW25-00	Cu	50	25	45	0	98.6	flat	NiCu
LM-CU-19.7SMA10-1000CX	Cu	50	6	45	0	98.6	flat	SuperMax
LM-CU-19.7SMA5-00	Cu	50	5	45	0	98.6	flat	SuperMax
LM-CU-19.7SMA9-00	Cu	50	9	45	0	98.6	flat	SuperMax
LM-CU-20NCA5-00	Cu	50.8	5	45	0	98.6	flat	NiCu
LM-CU-20SMA5-00	Cu	50.8	5	45	0	98.6	flat	SuperMax
LM-CU-23.6NCA10-00	Cu	60	10	45	0	98.6	flat	NiCu
LM-CU-23.6SMA6-00	Cu	60	6	45	0	98.6	flat	SuperMax
LM-CU-29.5NCA15-00	Cu	75	15	45	0	98.6	flat	NiCu
LM-CU-29.5NCW25-00	Cu	75	25	45	0	98.6	flat	NiCu
LM-CU-29.5SMA17-00	Cu	75	17	45	0	98.6	flat	SuperMax

Remark: M: material; A(deg): angle of incidence; ET: edge thickness; T(%): transmission; R (%): reflectance; ROC: radius of curvature.

Gold-coated Reflectors: Glass Substrate

Model	Description	Wavelength	Dia	Thk	
LM-10.6-D20-T3	CO2 laser mirror, glass substrate	10.6um	20mm	3mm	Gold coating, flat
LM-10.6-D25-T3	CO2 laser mirror, glass substrate	10.6um	25mm	3mm	Gold coating, flat

Other dimension mirrors available upon request.

Mo Mirrors

Molybdenum mirrors in a huge range of sizes are available, with a selection of different coatings to suite you application.

- Advanced manufacturing methods
- Latest ultra-low absorption coatings
- Highest quality substrates



Part No.	M	Dia mm	ET mm	A deg	T %	R %	S2 ROC m	Coating
LM-MO-5.9MO2-00	Mo	15	2	0	0	98.5	flat	Uncoated
LM-MO-15MO6-00	Mo	38	6	45	0	98.5	flat	Uncoated
LM-MO-17.5MO8-00	Mo	44.5	8	45	0	98.5	flat	Uncoated
LM-MO-19.7MO2-00	Mo	50	2	45	0	98.5	flat	Uncoated
LM-MO-19.7MO3-00	Mo	50	3	45	0	98.5	flat	Uncoated
LM-MO-19.7MO5-14	Mo	50	5	45	0	98.5	flat	Uncoated
LM-MO-19.7MO6-00	Mo	50	6	45	0	98.5	flat	Uncoated
LM-MO-20MO5-00	Mo	50.8	5.1	45	0	98.5	flat	Uncoated
LM-MO-23.6MO10-00	Mo	60	10	45	0	98.5	flat	Uncoated
LM-MO-29.5MO15-00	Mo	75	15	45	0	98.5	flat	Uncoated

Remark: M: material; A(deg): angle of incidence; ET: edge thickness; T(%): transmission; R (%): reflectance; ROC: radius of curvature.

Metal Mirrors, Molybdenum for CO2 Lasers and 10.6μm

- Uncoated
- Phase Shift: <math><2.0^\circ</math> between P and S polarization
- for 10.6μm operation only @ 45° Angle Of Incidence
- Reflectance: > 98.0% average @ 10.6μm

Model Number	Diameter	Thickness
LM-MO-MM-1012-UC	1.000"	0.120"
LM-MO-MM-1516-UC	1.500"	0.160"
LM-MO-MM-1525-UC	1.500"	0.250"
LM-MO-MM-2020-UC	2.000"	0.200"
LM-MO-MM-2038-UC	2.000"	0.380"
LM-MO-MM-3025-UC	3.000"	0.250"
LM-MO-MM-3050-UC	3.000"	0.500"

CO2 Laser 10.6um Flat Partial Reflectors (Output Couplers)

ZnSe partial reflectors can be fabricated in any diameter from 4.0mm up to 250mm, and in thicknesses from 1.0mm up to 50mm. They differ from beam splitters in that the coatings are designed for normal incidence.

- Many types available
- OEM equivalents for your laser cavity in stock
- Coatings from our Coating Services

Part No.	Material	Dia mm	ET mm	A deg	T %	R %	Coating
LM-10.6-10ZPF3-17-N	ZnSe	25.4	3	0	83	17	AR/17%
LM-10.6-10ZPF3-40-N	ZnSe	25.4	3	0	60	40	AR/40%
LM-10.6-10ZPF3-50-N	ZnSe	25.4	3	0	50	50	AR/50%
LM-10.6-10ZPF3-60-N	ZnSe	25.4	3	0	40	60	AR/60%
LM-10.6-10ZPF3-65-N	ZnSe	25.4	3	0	35	65	AR/65%
LM-10.6-10ZPF3-70-N	ZnSe	25.4	3	0	30	70	AR/70%
LM-10.6-10ZPF3-75-N	ZnSe	25.4	3	0	25	75	AR/75%
LM-10.6-10ZPF3-80-N	ZnSe	25.4	3	0	20	80	AR/80%
LM-10.6-10ZPF3-85-N	ZnSe	25.4	3	0	15	85	AR/85%
LM-10.6-10ZPF3-90-N	ZnSe	25.4	3	0	10	90	AR/90%
LM-10.6-10ZPF3-95-N	ZnSe	25.4	3	0	5	95	AR/95%
LM-10.6-10ZPF3-99-N	ZnSe	25.4	3	0	1	99	AR/99%
LM-10.6-10ZPF3-99-R	ZnSe	25.4	3	45	1	99	AR/99%-45R
LM-10.6-10ZPF4-85-N	ZnSe	25.4	4	0	15	85	AR/85%
LM-10.6-10ZPF6-50-N	ZnSe	25.4	6	0	50	50	AR/50%
LM-10.6-10ZPF6-60-N	ZnSe	25.4	6	0	40	60	AR/60%
LM-10.6-10ZPF6-65-N	ZnSe	25.4	6	0	35	65	AR/65%
LM-10.6-11GPF458679	GaAs	28	3	0	35	65	AR/65%
LM-10.6-11ZPF3-27-N	ZnSe	28	3.1	0	73	27	AR/27%
LM-10.6-11ZPF3-50-N	ZnSe	28	3	0	50	50	AR/50%
LM-10.6-11ZPF3-60-N	ZnSe	28	3	0	40	60	AR/60%
LM-10.6-D28-11ZPF3-65-N	ZnSe	28	3.1	0	35	65	AR/65%
LM-10.6-11ZPF3-85-N	ZnSe	28	3.1	0	15	85	AR/85%
LM-10.6-11ZPF6-60-N	ZnSe	28	6	0	40	60	AR/60%
LM-10.6-12.6ZPF5-17-N	ZnSe	32	5	0	83	17	AR/17%
LM-10.6-15ZPF3-17-N	ZnSe	38.05	3	0	83	17	AR/17%
LM-10.6-15ZPF3-1-N	ZnSe	38.05	3	0	99	1	AR/1%
LM-10.6-15ZPF3-25-N	ZnSe	38.05	3	0	75	25	AR/25%
LM-10.6-15ZPF3-33-N	ZnSe	38.05	3	0	66.7	33.3	AR/33.3%
LM-10.6-15ZPF3-45-R	ZnSe	38.05	3	45	55	45	AR/45%-45R
LM-10.6-15ZPF3-50-N	ZnSe	38.05	3	0	50	50	AR/50%
LM-10.6-15ZPF3-57-N	ZnSe	38.05	3	0	43	57	AR/57%
LM-10.6-15ZPF3-60-N	ZnSe	38.05	3	0	40	60	AR/60%
LM-10.6-15ZPF3-65-N	ZnSe	38.05	3	0	35	65	AR/65%
LM-10.6-15ZPF3-70-N	ZnSe	38.05	3	0	30	70	AR/70%
LM-10.6-15ZPF3-75-N	ZnSe	38.05	3	0	25	75	AR/75%
LM-10.6-15ZPF3-80-N	ZnSe	38.05	3	0	20	80	AR/80%
LM-10.6-15ZPF3-85-N	ZnSe	38.05	3	0	15	85	AR/85%
LM-10.6-15ZPF3-90-N	ZnSe	38.05	6	0	10	90	AR/90%
LM-10.6-15ZPF4-25-N	ZnSe	38.05	4	0	75	25	AR/25%
LM-10.6-15ZPF4-60-N	ZnSe	38.05	4	0	40	60	AR/60%
LM-10.6-15ZPF6-99-N	ZnSe	38.05	6	0	1	99	AR/99%
LM-10.6-15.7ZPF4-50-N	ZnSe	40	4	0	50	50	AR/50%
LM-10.6-17.5ZPF4-17-N	ZnSe	44.45	4	0	83	17	AR/17%
LM-10.6-19.7ZPF4-50-N	ZnSe	50	4	0	50	50	AR/50%
LM-10.6-20ZPF5-50-S-9.4	ZnSe	50.8	5	45	50	50	AR/50%-45S
LM-10.6-20ZPF5-99-S-9.4	ZnSe	50.8	5	45	1	99	AR/99%-

Remark: M: material; A(deg): angle of incidence; ET: edge thickness; T(%): transmission; R (%): reflectance; ROC: radius of curvature.

OCZ Series Flat Output Couplers

Specifications:

Material: Zinc Selenide (ZnSe) Laser Grade

Diameter Tolerances: +0.000", -0.005" for parts up to 2.000"Ø
+0.000", -0.010" for parts from 2.50" to 6.000"Ø

Thickness: ±.010"

Parallelism: < 3 minutes

Surface Quality: < 40/20 scratch – dig Laser Finish

Spectral Performance:

Side 1

Partial Reflectance Values as indicated

Tolerances on Reflectance

50-70% ±3.0%

75-85% ±2.0%

90-95% ±1.5%

Side 2

Standard high-efficiency low loss anti-reflectance thin film coating applied to this side only

Reflectance per surface @ 10.6µm for normal incidence <0.20%

Transmission: > 99.0%

Model Number	Diameter	Thickness	% Reflectance
LM-10.6-OCZ-0512-50	0.500"	0.120"	50%
LM-10.6-OCZ-0512-70	0.500"	0.120"	70%
LM-10.6-OCZ-0512-75	0.500"	0.120"	75%
LM-10.6-OCZ-0512-80	0.500"	0.120"	80%
LM-10.6-OCZ-0512-85	0.500"	0.120"	85%
LM-10.6-OCZ-0512-90	0.500"	0.120"	90%
LM-10.6-OCZ-0512-95	0.500"	0.120"	95%
LM-10.6-OCZ-0712-50	0.750"	0.120"	50%
LM-10.6-OCZ-0712-70	0.750"	0.120"	70%
LM-10.6-OCZ-0712-75	0.750"	0.120"	75%
LM-10.6-OCZ-0712-80	0.750"	0.120"	80%
LM-10.6-OCZ-0712-85	0.750"	0.120"	85%
LM-10.6-OCZ-0712-90	0.750"	0.120"	90%
LM-10.6-OCZ-0712-95	0.750"	0.120"	85%
LM-10.6-OCZ-1012-50	1.000"	0.120"	50%
LM-10.6-OCZ-1012-70	1.000"	0.120"	70%
LM-10.6-OCZ-1012-75	1.000"	0.120"	75%
LM-10.6-OCZ-1012-80	1.000"	0.120"	80%
LM-10.6-OCZ-1012-85	1.000"	0.120"	85%
LM-10.6-OCZ-1012-90	1.000"	0.120"	90%
LM-10.6-OCZ-1012-95	1.000"	0.120"	95%
LM-10.6-OCZ-1512-50	1.500"	0.120"	50%
LM-10.6-OCZ-1512-70	1.500"	0.120"	70%
LM-10.6-OCZ-1512-75	1.500"	0.120"	75%
LM-10.6-OCZ-1512-80	1.500"	0.120"	80%
LM-10.6-OCZ-1512-85	1.500"	0.120"	85%
LM-10.6-OCZ-1512-90	1.500"	0.120"	90%
LM-10.6-OCZ-1512-95	1.500"	0.120"	95%
LM-10.6-OCZ-2020-50	2.000"	0.200"	50%
LM-10.6-OCZ-2020-70	2.000"	0.200"	70%
LM-10.6-OCZ-2020-75	2.000"	0.200"	75%
LM-10.6-OCZ-2020-80	2.000"	0.200"	80%
LM-10.6-OCZ-2020-85	2.000"	0.200"	85%
LM-10.6-OCZ-2020-90	2.000"	0.200"	90%
LM-10.6-OCZ-2020-95	2.000"	0.200"	95%

CO2 Laser 10.6um Curved Partial Reflectors (Output couplers)

ZnSe partial reflectors can be fabricated in any diameter from 4.0mm up to 250mm, and in thicknesses from 1.0mm up to 50mm.

- Advanced in-house design
- Huge range of
- High quality laser grade material

Part No.	M	Dia	ET	A deg	T	R	S1 ROC m	S2 ROC m	Coating
LM-10.6-5.9ZPC0010	ZnSe	15	3	0	15	85	flat	10	AR/85%
LM-10.6-6.4ZPC0010	ZnSe	16.2	2.7	0	83	17	flat	3	AR/17%
LM-10.6-10GER15-99	Ge	25.4	6	0	0.4	99.6	flat	15	AR/99.6%
LM-10.6-10GER20-99	Ge	25.4	3	0	0.5	99.5	flat	20	AR/99.5%
LM-10.6-10ZPC0010	ZnSe	25.4	3	0	60	40	7.5	15	AR/40%
LM-10.6-10ZPC0015	ZnSe	25.4	3	0	50	50	flat	10	AR/50%
LM-10.6-10ZPC0020	ZnSe	25.4	3	0	50	50	7.5	10	AR/50%
LM-10.6-10ZPC0022	ZnSe	25.4	6	0	50	50	7.5	10	AR/50%
LM-10.6-10ZPC0030	ZnSe	25.4	3	0	50	50	7.5	15	AR/50%
LM-10.6-10ZPC0040	ZnSe	25.4	6	0	50	50	7.5	15	AR/50%
LM-10.6-10ZPC0045	ZnSe	25.4	6	0	40	60	flat	20	AR/60%
LM-10.6-10ZPC0050	ZnSe	25.4	6	0	35	65	30	30	AR/65%
LM-10.6-10ZPC0060	ZnSe	25.4	6	0	35	65	flat	15	AR/65%
LM-10.6-10ZPC0062	ZnSe	25.4	3	0	0.5	99.5	flat	10	AR/99.5%
LM-10.6-10ZPC0063	ZnSe	25.4	3	0	0.5	99.5	flat	15	AR/99.5%
LM-10.6-10ZPC0064	ZnSe	25.4	3	0	0.5	99.5	flat	20	AR/99.5%
LM-10.6-10ZPC0066	ZnSe	25.4	4.7	0	1	99	flat	3	AR/99%
LM-10.6-10ZPC0068	ZnSe	25.4	4	0	40	60	20	20	AR/60%
LM-10.6-10ZPC0070	ZnSe	25.4	6	0	0.4	99.6	flat	10	AR/99.6%
LM-10.6-10ZPC0080	ZnSe	25.4	6	0	0.4	99.6	flat	15	AR/99.6%
LM-10.6-10ZPC0085	ZnSe	25.4	6	0	0.4	99.6	flat	20	AR/99.6%
LM-10.6-10ZPC0090	ZnSe	25.4	6	0	0.4	99.6	flat	30	AR/99.6%
LM-10.6-11GER10-99.5	Ge	28	6	0	0.5	99.5	N/A	N/A	AR/99.5%
LM-10.6-11GER30-99.5	Ge	28	5.6	0	0.5	99.5	N/A	N/A	AR/99.5%
LM-10.6-11MNFO010	ZnSe	28	4	0	50	50	5	10	AR/50%
LM-10.6-11MNFO020	ZnSe	28	4	0	50	50	10	20	AR/50%
LM-10.6-11MNFO030	ZnSe	28	4	0	50	50	15	20	AR/50%
LM-10.611MNFO040	ZnSe	28	4	0	25	75	15	20	AR/75%
LM-10.6-11MANRO0010	ZnSe	28	4	0	0.8	99.2	flat	10	AR/99.2%
LM-10.6-11MANRO0020	ZnSe	28	4	0	0.8	99.2	flat	20	AR/99.2%
LM-10.6-11NFO010	ZnSe	28	4	0	50	50	5	10	AR/50%
LM-10.6-11NFO020	ZnSe	28	4	0	50	50	10	20	AR/50%
LM-10.6-11NFO030	ZnSe	28	4	0	50	50	15	20	AR/50%
LM-10.6-11NFO040	ZnSe	28	4	0	25	75	15	20	AR/75%
LM-10.6-11ZPC0010	ZnSe	28	6	0	50	50	7.5	10	AR/50%
LM-10.6-11ZPC0016	ZnSe	28	6	0	83	17			AR/17%
LM-10.6-11ZPC0020	ZnSe	28	6	0	40	60	7.5	15	AR/60%
LM-10.6-11ZPC0022	ZnSe	28	6	0	40	60	7.5	20	AR/60%
LM-10.6-11ZPC0030	ZnSe	28	4	0	35	65	flat	30	AR/65%
LM-10.6-11ZPC0033	ZnSe	28	3	0	1	99	flat	20	AR/99%
LM-10.6-11ZPC0040	ZnSe	28	4	0	35	65	flat	60	AR/65%
LM-10.6-11ZPC0041	ZnSe	28	4	0	60	40			AR/40%
LM-10.6-11ZPC0050	ZnSe	28	6	0	1	99	flat	20	AR/99%
LM-10.6-11ZPC0059	ZnSe	28	6	0	50	50			AR/50%
LM-10.6-12.6ZPC0010	ZnSe	32	5	0	0.4	99.6	flat	20	AR/99.6%
LM-10.6-15GER35-99.5	Ge	38.05	4	0	0.5	99.5	flat	35	AR/99.5%

LM-10.6-15ZPC0016	ZnSe	38.05	6.3	0	0.4	99.6	flat	20	AR/99.6%
LM-10.6-15ZPC0020	ZnSe	38.05	6	0	0.4	99.6	flat	20	AR/99.6%
LM-10.6-15ZPC0060	ZnSe	38.05	8	0	40	60	35	15	AR/60%
LM-10.6-20ZPC0011	ZnSe	50.8	5	0	15	85			AR/85%

Remark: M: material; A(deg): angle of incidence; ET: edge thickness; T(%): transmission; R (%): reflectance; ROC: radius of curvature.

How to find the coating on the surface of the mirrors

1. Watch the surface at a angle (about 45 degree) and you can see the color film on the mirror.
2. Sometime there is no coating near the edge and thus you can easily find the coating surface.

General rules about cleaning lenses/mirrors

1. Always wear finger cots when handling any lens or mirror to keep finger oils off of the optic.
2. Always handle optics by the edge of the optic. Never touch the coated surfaces.
3. Never rub an optical surface, as this can mar or scratch the coated surface.
4. Avoid using Q-tips or cotton balls to clean an optical surface.
5. Use a high-grade acetone to clean your optic, which should be dispensed by an eyedropper on to lens cleaning tissue.
6. Never put any foreign objects back into the acetone dispenser to avoid contamination of the acetone in the dispenser.

How to clean an optic:

Pull out your mirror/lens from its holder and lay it on a clean work area, or into a holder supplied by the manufacturer. You will need a lens cleaning tissue containing low ash content and no chemical additives. Also, you will need a small dispense bottle which has an eyedropper to apply the acetone.

1. If you do not have an optic holder, lay your optic onto a clean piece of lens tissue.
2. Remember that when lens tissue is dry it is abrasive and can scratch your optical surface.
3. Place a new piece of lens tissue over the optic, completely covering the optic.
4. Fill your eyedropper with 6-8 drops of acetone. You do not want to apply too much.
5. Drip acetone on to the center of the optic until it is saturated to the outside diameter of the optic.
6. Pull the lens tissue slowly across the optic. You will know if you are going too fast if you see residue left behind. At the correct speed, the acetone will evaporate as you drag the tissue across the lens. (If residue remains, you moved to quickly).
7. Repeat this process until you see a clean optical surface, with no marks or smudges. Always use a new piece of lens tissue each time to keep contaminants off of the optic you are cleaning.
8. If after repeated cleaning of the optical surface you still see any spots, pits, or scratches, determine whether or not to replace the optic with a new optic.
9. Replace your optics as soon as possible to keep any airborne particles from getting on the optic