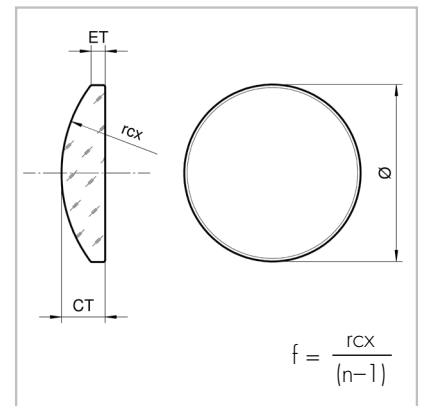


Plano-convex Lenses and Plano-concave Lenses

The inexpensive plano-convex and plano-concave lenses are often used in laser applications. Compared to lenses with two curved surfaces, lenses with the same focal length have a higher spherical aberration. When used in laser applications, experience has shown that aberrations can be neglected on account of the small beam diameter. Therefore, the quality of plano-concave and plano-convex lenses is adequate.

In the table, you will find focal length values for commonly used wavelengths.



Plano-convex Lenses

Plano-convex lenses are so-called positive lenses. They are primarily used to focus laser beams, for images with long focal lengths, and for beam expansion.

Nomenclature

PLCX	-25.4	/51.5	C
Product code (Plano Convex Lens)	Diameter in mm	Convex radius of curvature in mm	Material code UV: fused silica C: BK7

Typical Specifications

Material	BK7, fused silica
Diameter tolerance	+ 0.00 mm; - 0.20 mm
Thickness tolerance	± 0.20 mm
Radii tolerance	± 0.5 % for $r_{cx} < 0.5$ m ± 1% for 0.5 m $< r_{cx} < 2$ m For radii larger than 2 m please check with our sales department.
Clear aperture	85 % of diameter
Surface figure Curved surface Plane surface	3/-(0.2/-) according to ISO 10110 3/0.2(0.2/-) according to ISO 10110 $\lambda/10$ according to MIL-O-1380A
Surface quality	5/4 x 0.025 for 1.0" substrates according to ISO 10110 10-5 according to MIL-O-1380A
Centering error	4/3' according to ISO 10110
Protective chamfer	0.2 - 0.4 mm x 45°

Fused Silica Plano Convex Lenses

Part No.	Nominal f [mm]	Diameter Ø [mm]	f [mm] (248 nm) n = 1.50855	f [mm] (308 nm) n = 1.4856	f [mm] (355 nm) n = 1.47607	f [mm] (1064 nm) n = 1.44963	Curvature r_{cx} [mm]	Center Thickness CT [mm]	Edge Thickness ET [mm]
PLCX-10.0/10.3UV	20	10.0	20.3	21.2	21.6	22.9	10.3	3.9	2.6
PLCX-15.0/12.9UV	25	15.0	25.4	26.6	27.1	28.7	12.9	4.9	2.5
PLCX-25.4/12.9UV	25	25.4	25.4	26.6	27.1	28.7	12.9	12.6	2.0
PLCX-12.7/15.5UV	30	12.7	30.5	31.9	32.6	34.5	15.5	3.4	2.0
PLCX-25.4/18.0UV	35	25.4	35.4	37.1	37.8	40.0	18.0	7.2	2.0
PLCX-25.4/20.6UV	40	25.4	40.5	42.4	43.3	45.8	20.6	5.3	0.9
PLCX-12.7/25.8UV	50	12.7	50.7	53.1	54.2	57.4	25.8	4.0	3.2
PLCX-25.4/25.8UV	50	25.4	50.7	53.1	54.2	57.4	25.8	5.3	2.0
PLCX-25.4/30.9UV	60	25.4	60.8	63.6	64.9	68.7	30.9	4.2	1.5
PLCX-12.7/33.7UV	65	12.7	66.3	69.4	70.8	75.0	33.7	3.0	2.4
PLCX-25.4/33.7UV	65	25.4	66.3	69.4	70.8	75.0	33.7	5.0	2.5

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Part No.	Nominal f [mm]	Diameter Ø [mm]	f [mm] (248 nm) n = 1.50855	f [mm] (308 nm) n = 1.4856	f [mm] (355 nm) n = 1.47607	f [mm] (1064 nm) n = 1.44963	Curvature rcx [mm]	Center Thickness CT [mm]	Edge Thickness ET [mm]
PLCX-12.7/38.6UV	75	12.7	75.9	79.5	81.1	85.8	38.6	2.0	1.5
PLCX-25.4/38.6UV	75	25.4	75.9	79.5	81.1	85.8	38.6	3.6	1.5
PLCX-38.1/38.6UV	75	38.1	75.9	79.5	81.1	85.8	38.6	7.0	2.0
PLCX-25.4/51.5UV	100	25.4	101.3	106.0	108.2	114.5	51.5	4.0	2.4
PLCX-38.1/51.5UV	100	38.1	101.3	106.0	108.2	114.5	51.5	6.0	2.3
PLCX-50.8/51.5UV	100	50.8	101.3	106.0	108.2	114.5	51.5	10.0	3.3
PLCX-25.4/64.4UV	125	25.4	126.6	132.6	135.3	143.2	64.4	3.5	2.2
PLCX-38.1/64.4UV	125	38.1	126.6	132.6	135.3	143.2	64.4	5.0	2.1
PLCX-25.4/77.3UV	150	25.4	152.0	159.2	162.4	171.9	77.3	4.0	2.9
PLCX-50.8/77.3UV	150	50.8	152.0	159.2	162.4	171.9	77.3	7.0	2.7
PLCX-50.8/91.2UV	180	50.8	179.3	187.8	191.6	202.8	91.2	6.6	3.0
PLCX-12.7/103.0UV	200	12.7	202.5	212.1	216.4	229.1	103.0	2.2	2.0
PLCX-25.4/103.0UV	200	25.4	202.5	212.1	216.4	229.1	103.0	4.0	3.2
PLCX-50.8/103.0UV	200	50.8	202.5	212.1	216.4	229.1	103.0	6.4	3.2
PLCX-25.4/128.8UV	250	25.4	253.3	265.2	270.5	286.5	128.8	4.0	3.4
PLCX-25.4/154.5UV	300	25.4	303.8	318.1	324.5	343.6	154.5	4.0	3.5
PLCX-25.4/180.3UV	350	25.4	354.5	371.3	378.7	401.0	180.3	4.0	3.6
PLCX-50.8/180.3UV	350	50.8	354.5	371.3	378.7	401.0	180.3	6.4	4.6
PLCX-25.4/206.0UV	400	25.4	405.1	424.2	432.7	458.2	206.0	2.4	2.0
PLCX-25.4/257.5UV	500	25.4	506.3	530.2	540.9	572.7	257.5	4.0	3.7
PLCX-50.8/257.5UV	500	50.8	506.3	530.2	540.9	572.7	257.5	6.4	5.1
PLCX-50.8/306.0UV	600	50.8	601.7	630.1	642.8	680.6	306.0	6.4	5.3
PLCX-25.4/309.1UV	608	25.4	607.8	636.5	649.3	687.5	309.1	3.7	3.4
PLCX-25.4/360.6UV	700	25.4	709.1	742.5	757.5	802.0	360.6	2.2	2.0
PLCX-25.4/386.4UV	750	25.4	759.8	795.7	811.6	859.4	386.4	2.2	2.0
PLCX-25.4/412.1UV	800	25.4	810.3	848.6	865.6	916.5	412.1	4.0	3.8
PLCX-25.4/515.1UV	1000	25.4	1012.9	1060.7	1082.0	1145.6	515.1	4.0	3.8
PLCX-50.8/515.1UV	1000	50.8	1012.9	1060.7	1082.0	1145.6	515.1	6.4	5.8
PLCX-25.4/772.6UV	1500	25.4	1519.2	1590.9	1622.9	1718.3	772.6	2.2	2.1
PLCX-25.4/1030.2UV	2000	25.4	2025.8	2121.3	2164.0	2291.2	1030.2	4.0	4.0

Bold type indicates items available from stock. Other sizes and materials are available upon request.

BK7 Plano Convex Lenses

Part No.	Nominal f [mm]	Diameter Ø [mm]	f [mm] (488 nm) n = 1.5222	f [mm] (532 nm) n = 1.51947	f [mm] (633 nm) n = 1.515	f [mm] (1064 nm) n = 1.50664	Curvature rcx [mm]	Center Thickness CT [mm]	Edge Thickness ET [mm]
PLCX-10.0/7.7C	15	10.0	14.7	14.8	14.9	15.2	7.7	3.8	2.0
PLCX-10.0/10.3C	20	10.0	19.7	19.8	20.0	20.3	10.3	3.9	2.6
PLCX-12.7/10.3C	20	12.7	19.7	19.8	20.0	20.3	10.3	3.9	1.7
PLCX-10.0/12.9C	25	10.0	24.7	24.8	25.0	25.5	12.9	4.0	3.0
PLCX-12.7/12.9C	25	12.7	24.7	24.8	25.0	25.5	12.9	4.0	2.3
PLCX-25.4/12.9C	25	25.4	24.7	24.8	25.0	25.5	12.9	12.6	2.0
PLCX-12.7/15.5C	30	12.7	29.7	29.8	30.1	30.6	15.5	3.4	2.0
PLCX-12.7/20.6C	40	12.7	39.4	39.7	40.0	40.7	20.6	3.5	2.5
PLCX-25.4/20.6C	40	25.4	39.4	39.7	40.0	40.7	20.6	5.3	0.9
PLCX-12.7/25.8C	50	12.7	49.4	49.7	50.1	50.9	25.8	2.0	1.2
PLCX-25.4/25.8C	50	25.4	49.4	49.7	50.1	50.9	25.8	5.3	2.0
PLCX-10.0/30.0C	58	10.0	57.4	57.8	58.2	59.2	30.0	6.0	5.6
PLCX-15.0/30.9C	60	15.0	59.2	59.5	60.0	61.0	30.9	2.1	1.2
PLCX-25.4/30.9C	60	25.4	59.2	59.5	60.0	61.0	30.9	4.2	1.5
PLCX-25.4/36.1C	70	25.4	69.1	69.5	70.1	71.3	36.1	4.5	2.2
PLCX-12.7/38.6C	75	12.7	73.9	74.3	74.9	76.2	38.6	2.0	1.5
PLCX-25.4/38.6C	75	25.4	73.9	74.3	74.9	76.2	38.6	3.6	1.5
PLCX-25.4/41.2C	80	25.4	78.9	79.3	80.0	81.3	41.2	4.3	2.3
PLCX-12.7/46.2C	90	12.7	88.5	88.9	89.7	91.2	46.2	2.4	2.0
PLCX-15.0/51.5C	100	15.0	98.6	99.1	100.0	101.7	51.5	2.6	2.0
PLCX-19.1/51.5C	100	19.1	98.6	99.1	100.0	101.7	51.5	4.0	3.1
PLCX-25.4/51.5C	100	25.4	98.6	99.1	100.0	101.7	51.5	4.0	2.4
PLCX-50.8/51.5C	100	50.8	98.6	99.1	100.0	101.7	51.5	10.0	3.3
PLCX-25.4/64.4C	125	25.4	123.3	124.0	125.0	127.1	64.4	2.6	1.3
PLCX-38.1/64.4C	125	38.1	123.3	124.0	125.0	127.1	64.4	4.9	2.0
PLCX-12.7/77.3C	150	12.7	148.0	148.8	150.1	152.6	77.3	2.0	1.7
PLCX-25.4/77.3C	150	25.4	148.0	148.8	150.1	152.6	77.3	4.0	2.9
PLCX-38.1/77.3C	150	38.1	148.0	148.8	150.1	152.6	77.3	5.0	2.6
PLCX-50.8/77.3C	150	50.8	148.0	148.8	150.1	152.6	77.3	7.0	2.7

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Part No.	Nominal f [mm]	Diameter Ø [mm]	f [mm] (488 nm) n = 1.5222	f [mm] (532 nm) n = 1.51947	f [mm] (633 nm) n = 1.515	f [mm] (1064 nm) n = 1.50664	Curvature rcx [mm]	Center Thickness CT [mm]	Edge Thickness ET [mm]
PLCX-10.0/103.0C	200	10.0	197.2	198.3	200.0	203.3	103.0	2.3	2.2
PLCX-12.7/103.0C	200	12.7	197.2	198.3	200.0	203.3	103.0	2.4	2.2
PLCX-25.4/103.0C	200	25.4	197.2	198.3	200.0	203.3	103.0	4.0	3.2
PLCX-50.8/103.0C	200	50.8	197.2	198.3	200.0	203.3	103.0	6.4	3.2
PLCX-25.4/128.8C	250	25.4	246.6	247.9	250.1	254.2	128.8	4.0	3.4
PLCX-50.8/128.8C	250	50.8	246.6	247.9	250.1	254.2	128.8	5.5	3.0
PLCX-25.4/154.5C	300	25.4	295.8	297.4	300.0	305.0	154.5	4.0	3.5
PLCX-38.1/154.5C	300	38.1	295.8	297.4	300.0	305.0	154.5	3.2	2.0
PLCX-25.4/180.3C	350	25.4	345.2	347.1	350.0	355.9	180.3	4.0	3.6
PLCX-25.4/206.0C	400	25.4	394.5	396.6	399.9	406.6	206.0	2.4	2.0
PLCX-25.4/257.5C	500	25.4	493.1	495.7	499.9	508.3	257.5	4.0	3.7
PLCX-38.1/257.5C	500	38.1	493.1	495.7	499.9	508.3	257.5	5.0	4.3
PLCX-50.8/257.5C	500	50.8	493.1	495.7	499.9	508.3	257.5	6.4	5.1
PLCX-25.4/309.1C	600	25.4	591.9	595.0	600.1	610.1	309.1	4.0	3.7
PLCX-50.8/309.1C	600	50.8	591.9	595.0	600.1	610.1	309.1	6.4	5.4
PLCX-25.4/386.3C	750	25.4	739.7	743.6	750.0	762.5	386.3	2.2	2.0
PLCX-50.8/386.3C	750	50.8	739.7	743.6	750.0	762.5	386.3	6.0	5.2
PLCX-25.4/515.1C	1000	25.4	986.3	991.6	1000.0	1016.7	515.1	4.0	3.8
PLCX-50.8/515.1C	1000	50.8	986.3	991.6	1000.0	1016.7	515.1	6.4	5.8
PLCX-25.4/772.6C	1500	25.4	1479.4	1487.3	1500.0	1525.0	772.6	2.2	2.1
PLCX-25.4/1030.2C	2000	25.4	1972.7	1983.2	2000.1	2033.4	1030.2	4.0	3.9
PLCX-50.8/1030.2C	2000	50.8	1972.7	1983.2	2000.1	2033.4	1030.2	6.4	6.1
PLCX-25.4/1545.0C	3000	25.4	2958.4	2974.2	2999.5	3049.6	1545.0	4.0	3.9
PLCX-25.4/2575C	5000	25.4	4930.7	4957.0	4999.2	5082.6	2575.0	4.0	4.0

Bold type indicates items available from stock. Other sizes and materials are available upon request.