

Approval number :

Customer :

PN	Code	Product
HK-44@11-15-D6-20-1g-1	1.01.6752	HK 44@11-15° Lens
HK-44@11-24-D9-20-1g-1	1.01.6753	HK 44@11-24° Lens
HK-44@11-36-D9-20-1g-1	1.01.6754	HK 44@11-36° Lens
HK-44@11-45-D6-20-1g-1	1.01.02606	HK 44@11-45° Lens
HK-44@11-60-D9-20-1g-1	1.01.81383	HK 44@11-60° Lens

Manufacturer : Chengdu HercuLux Photoelectric Technology Co.,Ltd



	Supplier co	onfirmation		Client cor	nfirmation	
Proposed		DATE	Qualified□		DATE	
Project manager		DATE	Unqualified□		DATE	
Audit		DATE	Audit		DATE	
Approved		DATE	Approved		DATE	
Stamp		DATE	Stamp		DATE	

(Confirmation of acceptance by both parties must be signed and sealed)

Factory: Chengdu Shuangliu District, Iot industrial park 2 road HercuLux Photoelectric ParkPhone : 028-85887727 (801)028-85887990 (801)Fax : 028-85887730http://www.herculux.cn/Sales Dept: Shenzhen Nanshan District Nanshan Cloud Valley Innovation Industrial Park Comprehensive Service Building,TEL: 0755-2937 1541FAX: 0755-2907 5140

*Approval In duplicate, for both supplier and customer.

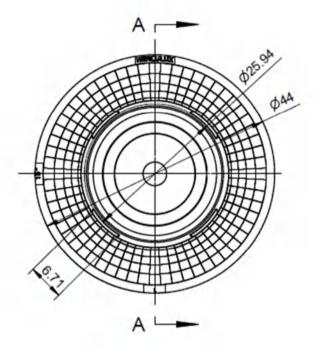


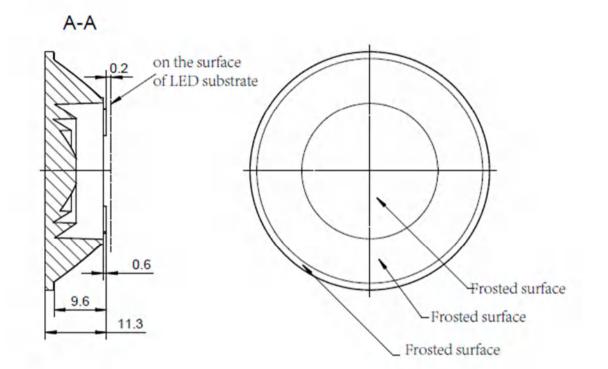
Product Approv

TEL: 0755-2937 1541 FAX: 0755-2907 5140 http://www.herculux.cn/ Date updated: 2021/11/17 **Product Picture:** PN: HK-44@11-15-D6-20-1g-1 Size(L*W*H/Φ*H) Φ:44mm; H:11.3mm Material: PC ١ Effiency: Material extreme temperature resistance : -40°C to +120°C Temperature(Topr): long-term use temperature : -40°C to +90°C 15°/24°/36°45°/60° FWHM: D6/D9 Matched LES:

2D drawing

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Technical remark:

MT5

Tolerance

table (mm) olerance valu

1. The 3D map is not indicated for rounded corners and draft angle.

<3

±0.1

2. The dimensional tolerances are not specified according to GB/T 14486 2008 MT5.

3, The surface has no flash, shrinkage, bubbles and other defects.

Basic size

*4. When the lamp adopts rubber ring for waterproofing: the roughness of the contact surface be the radiator and the rubber ring is required: Ra<3.2 μ m

3~10

±0.15

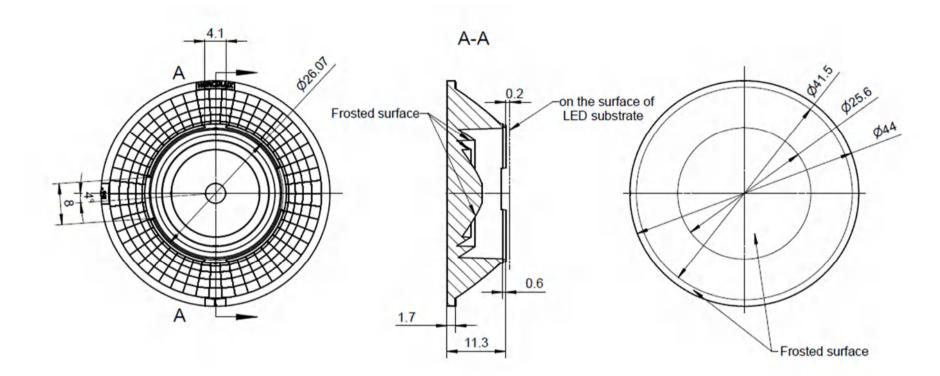
10~24

±0.20

24~65

		Optical design						HK-44@11-15-D6-20-1g-1					
	itructure desi		e desig					HK 44	@11-15°Lens			1.01.6752	
surface betw	een	Rev	view							umber of	drawin	qty	weight
		Valid	ation					Material:	PC			CDHK	
65~140	140~	~250	250~	~450	>4	450							
±0.50	±0	.80	±1	2	±2	2.0]						

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Technical remark:

MT5

Tolerance

table (mm) olerance valu

1. The 3D map is not indicated for rounded corners and draft angle.

<3

±0.1

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Basic size

*4. When the lamp adopts rubber ring for waterproofing: the roughness of the contact surface be the radiator and the rubber ring is required: Ra<3.2 μ m

3~10

±0.15

10~24

±0.20

24~65

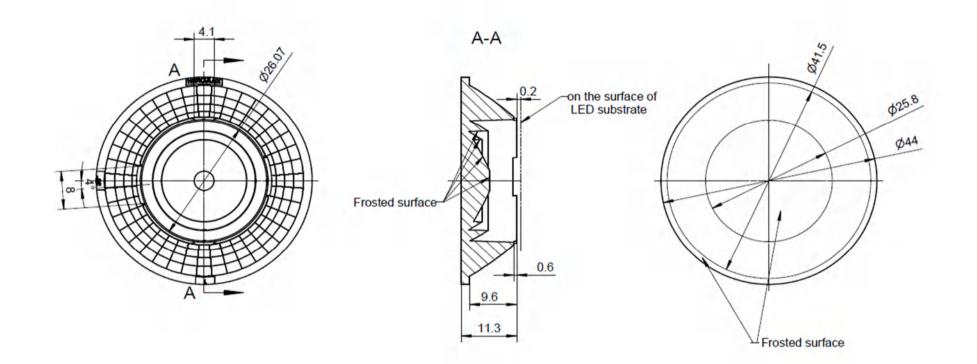
±0.35

		Optical	design					HK 44@11-24°Lens			HK-44@11-24-D9-20-1g-1				
		itructur	e desig									1.01.6753			
surface betwo	een	Rev	riew							umber o	f drawin	qty	wei	ght	
		Valid	ation					Material:	PC			CDHK			
65~140	140~	~250	250~	~450	>/	450									
±0.50	±0	.80	±1	2	±2	2.0									

2D drawing

2D drawing

HERCULUX 恒坤光电



Technical remark:

MT5

Tolerance

table (mm) olerance valu

1. The 3D map is not indicated for rounded corners and draft angle.

<3

±0.1

2. The dimensional tolerances are not specified according to GB/T 14486 2008 MT5.

3, The surface has no flash, shrinkage, bubbles and other defects.

Basic size

*4. When the lamp adopts rubber ring for waterproofing: the roughness of the contact surface betw the radiator and the rubber ring is required: Ra<3.2 μ m

3~10

±0.15

10~24

±0.20

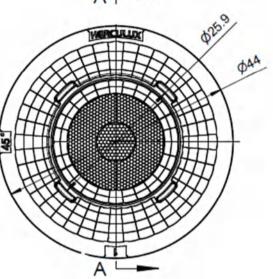
24~65

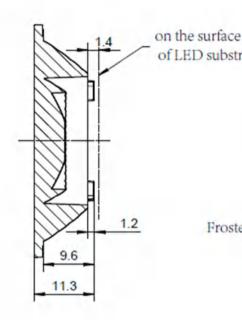
±0.35

		Optical	l design					HK 44@11-36°Lens			HK-44@11-36-D9-20-1g-1				
		itructur	e desig									1.01.6754			
surface betwo	een	Rev	view								umber of drawin qty w			ht	
		Valid	ation					Material:	PC			CDHK			
65~140	140~	~250	250~	~450	>/	450									
±0.50	±0	.80	±1	2	±2	2.0									

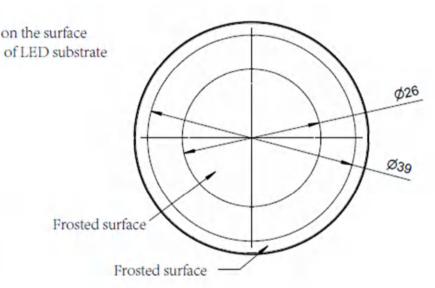
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A-A



Technical remark:

MT5

Tolerance

table (mm) olerance valu

1. The 3D map is not indicated for rounded corners and draft angle.

<3

±0.1

2. The dimensional tolerances are not specified according to GB/T 14486 2008 MT5.

3, The surface has no flash, shrinkage, bubbles and other defects.

Basic size

*4. When the lamp adopts rubber ring for waterproofing: the roughness of the contact surface the radiator and the rubber ring is required: Ra<3.2 μ m

3~10

±0.15

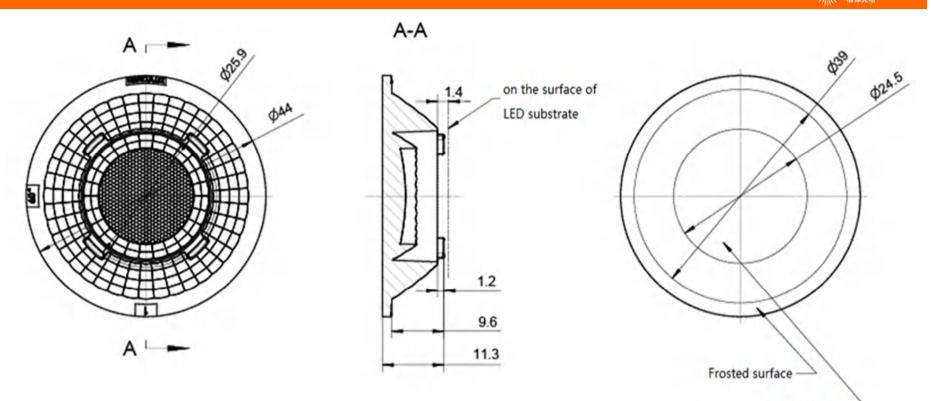
10~24

±0.20

24~65

		Optical	design					HK 44@11-45°Lens			HK-44@11-45-D6-20-1g-1				
		itructur	e desig									1.01.02606			
surface betwo	een	Rev	riew							umber of	drawin	qty	weigh	t	
		Valid	ation					Material:	PC			CDHK			
65~140	140~	~250	250~	~450	>4	450									
±0.50	±0	.80	±1	2	±2	2.0]								

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Frosted surface

Technical remark:

MT5

Tolerance

table (mm) olerance valu

1. The 3D map is not indicated for rounded corners and draft angle.

<3

±0.1

2. The dimensional tolerances are not specified according to GB/T 14486 2008 MT5.

3, The surface has no flash, shrinkage, bubbles and other defects.

Basic size

*4. When the lamp adopts rubber ring for waterproofing: the roughness of the contact surface be the radiator and the rubber ring is required: Ra<3.2 μ m

3~10

±0.15

10~24

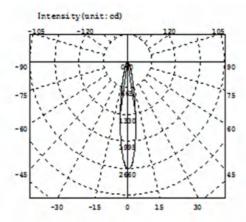
±0.20

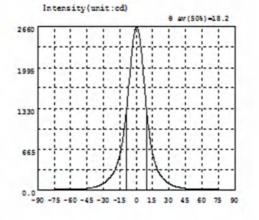
24~65

		Optical	l design								HK-44@11-60-D9-20-1g-1				
	tructure desig HK 44@11-60°Lens				@11-60°Lens			1.01.81383							
surface betw	een	Rev	view						umber of drawin qty we			weight			
		Valid	ation					Material:	PC			CDHK			
65~140	140~	~250	250~	~450	>	450									
±0.50	±0	.80	±1	L.2	±2	2.0									

CREE1512







Intensity data: (deg , cd) CO-180

λ	1	λ	I	λ	1	λ	1	λ	1	λ	1
-90.0	0.3312	-58.5	10.49	-27.0	144.9	4.5	2291	36.0	54.07	67.5	6.608
-88.5	0.3445	-57.0	11.31	-25.5	169.5	6.0	2011	37.5	45.92	69.0	6.102
-87.0	0.4474	-55.5	12.27	-24.0	198.6	7.5	1716	39.0	39.24	70.5	5.637
-85.5	0.7180	-54.0	13.06	-22.5	229.9	9.0	1419	40.5	33.79	72.0	5.193
-84.0	1.313	-52.5	14.14	-21.0	272.2	10.5	1144	42.0	29.37	73.5	4.731
-82.5	1.736	-51.0	15.43	-19.5	323.5	12.0	912.3	43.5	25.80	75.0	4.285
-81.0	2.207	-49.5	16.93	-18.0	387.1	13.5	729.5	45.0	22.85	76.5	3.853
-79.5	2.722	-48.0	18.70	-16.5	468.1	15.0	592.2	46.5	20.46	78.0	3.423
-78.0	3.232	-46.5	20.79	-15.0	570.0	16.5	487.2	48.0	18.42	79.5	2.912
-76.5	3.655	-45.0	23.22	-13.5	697.2	18.0	400.9	49.5	16.63	81.0	2.334
-75.0	4.116	-43.5	25.91	-12.0	857.3	19.5	327.8	51.0	15.11	82.5	1.860
-73.5	4.564	-42.0	29.45	-10.5	1057	21.0	274.9	52.5	13.83	84.0	1.376
-72.0	5.047	-40.5	34.06	-9.0	1294	22.5	232.1	54.0	12.77	85.5	0.8862
-70.5	5.543	-39.0	39.72	-7.5	1563	24.0	197.2	55.5	11.85	87.0	0.5026
-69.0	6.027	-37.5	46.60	-6.0	1844	25.5	167.7	57.0	10.99	88.5	0.4036
-67.5	6.536	-36.0	54.82	-4.5	2118	27.0	142.9	58.5	10.30	90.0	0.3185
-66.0	7.059	-34.5	64.76	-3.0	2390	28.5	122.0	60.0	9.556		
-64.5	7.626	-33.0	76.30	-1.5	2575	30.0	104.2	61.5	8.915		
-63.0	8.236	-31.5	89.86	0.0	2647	31.5	88.62	63.0	8.286		
-61.5	8.960	-30.0	105.4	1.5	2628	33.0	75.22	64.5	7.689		
-60.0	9.734	-28.5	123.8	3.0	2511	34.5	63.76	66.0	7.139		

Electricity Parameter:

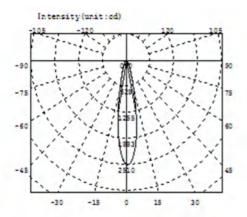
Current I:	0.1000A	Power:	3.358W
Voltage V:	33.59V	PF:	1.000

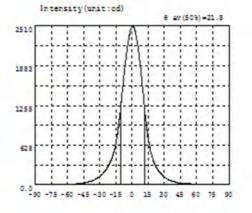
Optical Parameter(Distance=2.559m):

Equivalent Lumino	ous flux: Φ eff= 503.31m	Efficiency: Eff=149.911m/W
Diffuse angle:	@ (25%): 27.9deg@ (50%):	18.2deg@(75%): 11.2deg@(50%): 18.2deg
Diffuse angle:	@ (25%): 27.9deg@ (50%):	18.2deg@(75%): 11.3deg@(50%): 18.2deg
Imax=2651cd (C=0.	Odeg,G=0.5deg)	CO-180Plane Imax= 2651cd(G=0.5deg)
		CO-180Plane IO= 2647cd

CREE1507N







Intensity data: (deg , cd) CO-180

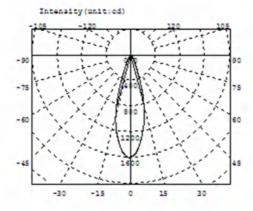
Å	1	λ	1	λ	1	Å	1	λ	1	λ	1
-90.0	1.133	-58.5	12.58	-27.0	181.9	4.5	2303	36.0	68.37	67.5	8.262
-88.5	1.248	-57.0	13.35	-25.5	210.4	6.0	2136	37.5	58.64	69.0	7.493
-87.0	1.466	-55.5	14.11	-24.0	241.1	7.5	1935	39.0	50.42	70.5	6.796
-85.5	1.811	-54.0	15.09	-22.5	281.5	9.0	1697	40.5	43.60	72.0	6.186
-84.0	2.207	-52.5	16.40	-21.0	328.1	10.5	1434	42.0	37.78	73.5	5.552
-82.5	2.590	-51.0	18.12	-19.5	383.4	12.0	1169	43.5	32.79	75.0	4.929
-81.0	2.973	-49.5	20.18	-18.0	450.1	13.5	930.4	45.0	28.78	76.5	4.311
-79.5	3.395	-48.0	22.70	-16.5	535.8	15.0	740.6	46.5	25.63	78.0	3.677
-78.0	3.896	-46.5	25.84	-15.0	648.3	16.5	596.7	48.0	23.08	79.5	3.167
-76.5	4.458	-45.0	29.73	-13.5	797.7	18.0	489.8	49.5	21.26	81.0	2.744
-75.0	5.075	-43.5	34.40	-12.0	989.7	19.5	404.3	51.0	19.77	82.5	2.311
-73.5	5.764	-42.0	39.91	-10.5	1223	21.0	333.2	52.5	18.53	84.0	2.022
-72.0	6.430	-40.5	46.37	-9.0	1472	22.5	282.1	54.0	17.43	85.5	1.660
-70.5	7.117	-39.0	53.90	-7.5	1717	24.0	240.0	55.5	16.99	87.0	1.397
- 69 . 0	7.710	-37.5	62.74	-6.0	1943	25.5	204.3	57.0	16.65	88.5	1.198
-67.5	8.195	-36.0	72.96	-4.5	2147	27.0	174.4	58.5	16.16	90.0	1.171
-66.0	8.689	-34.5	85.11	-3.0	2316	28.5	148.8	60.0	14.54		
-64.5	9.379	-33.0	99.38	-1.5	2439	30.0	127.1	61.5	11.93		
-63.0	10.11	-31.5	116.0	0.0	2498	31.5	108.5	63.0	10.48		
-61.5	10.90	-30.0	135.1	1.5	2494	33.0	92.82	64.5	9.675		
- 60 . 0	11.78	-28.5	157.1	3.0	2426	34.5	79.64	66.0	9.012		

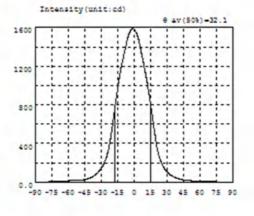
Electricity Parameter:

Current I:	0.1000A	Power:	3.460W
Voltage V:	34.59V	PF:	1.000

Optical Parameter(Distance=2.559m):

Equivalent Luminous flux: Φ eff= 591.31m Efficiency: Eff=170.901m/W Diffuse angle: \emptyset (25%): 31.3deg \emptyset (50%): 21.8deg \emptyset (75%): 14.2deg \emptyset (50%): 21.8deg Diffuse angle: \emptyset (25%): 31.3deg \emptyset (50%): 21.8deg \emptyset (75%): 14.3deg \emptyset (50%): 21.8deg Imax=2503cd (C=0.0deg,G=0.5deg) C0-180Plane Imax= 2503cd (G=0.5deg) C0-180Plane I0= 2498cd





Intensity data: (deg , cd) CO-180

A	1	A	I	A	1	A	1	A	1	A	1
-90.0	0.8153	-58.5	16.15	-27.0	204.5	4.5	1456	36.0	55.41	67.5	7.289
-88.5	0.9560	-57.0	19.66	-25.5	246.6	6.0	1377	37.5	47.16	69.0	6.578
-87.0	1.199	-55.5	20.94	-24.0	301.6	7.5	1295	39.0	40.71	70.5	5.930
-85.5	1.543	-54.0	20.49	-22.5	378.2	9.0	1205	40.5	35.40	72.0	5.322
-84.0	1.940	-52.5	18.57	-21.0	477.9	10.5	1122	42.0	30.90	73.5	4.745
-82.5	2.399	-51.0	17.82	-19.5	592.6	12.0	1029	43.5	26.96	75.0	4.255
-81.0	2.809	-49.5	18.64	-18.0	714.7	13.5	924.6	45.0	23.75	76.5	3.730
-79.5	3.335	-48.0	20.62	-16.5	841.3	15.0	611.3	46.5	20.94	78.0	3.189
-78.0	3.947	-46.5	23.24	-15.0	963.4	16.5	690.2	48.0	18.72	79.5	2.698
-76.5	4.521	-45.0	26.32	-13.5	1075	18.0	569.2	49.5	16.66	81.0	2.212
-75.0	5.072	-43.5	30.20	-12.0	1171	19.5	454.2	51.0	14.97	82.5	1.822
-73.5	5.696	-42.0	35.09	-10.5	1254	21.0	348.8	52.5	13.56	84.0	1.454
-72.0	6.234	-40.5	41.46	-9.0	1332	22.5	279.4	54.0	12.45	85.5	1.198
-70.5	6.818	-39.0	49.10	-7.5	1409	24.0	226.2	55.5	11.59	87.0	1.048
- 69.0	7.352	-37.5	58.16	-6.0	1483	25.5	184.5	57.0	10.91	88.5	0.9809
-67.5	7.923	-36.0	68.95	-4.5	1535	27.0	152.1	58.5	10.53	90.0	0.8827
-66.0	8.657	-34.5	82.00	-3.0	1571	28.5	126.8	60.0	10.45		
-64.5	9.526	-33.0	97.59	-1.5	1593	30.0	106.6	61.5	10.02		1
-63.0	10.24	-31.5	116.7	0.0	1583	31.5	89.92	63.0	9.438		
-61.5	10.96	-30.0	140.1	1.5	1556	33.0	76.60	64.5	8.729	-	
- 60 . 0	13.02	-28.5	169.1	3.0	1518	34.5	65.28	66.0	8.072		

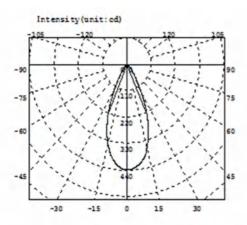
Electricity Parameter:

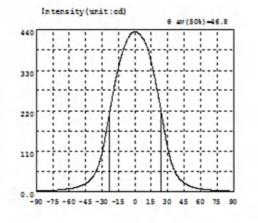
Current I:	0.1000A	Power:	3.450W
Voltage V:	34.50V	PF:	1.000

Optical Parameter (Distance=2.559m):

Equivalent Luminous	flux: \$ eff= 575.	41m Efficiency: Eff=166.811m/W
Diffuse angle:	@(25%): 42.3deg@(50%): 32.1deg@(75%): 20.6deg@(50%): 32.1deg
Diffuse angle:	@(25%): 42.4deg@(50%): 32.2deg@(75%): 20.9deg@(50%): 32.2deg
Imax=1593cd (C=0.0d	leg,G=-1.Odeg)	CO-180Plane Imax= 1593cd(G=-1.0deg)
		C0-180Plane IO= 1583cd







Intensity data: (deg , cd) CO-180

λ	I	λ	1	λ	I	λ	I	λ	I	λ	1
-90.0	0.6497	-58.5	7.871	-27.0	148.3	4.5	427.7	36.0	58.60	67.5	4.291
-88.5	0.9795	-57.0	8.783	-25.5	173.1	6.0	422.7	37.5	49.51	69.0	3.903
-87.0	0.9295	-55.5	9.919	-24.0	198.4	7.5	416.6	39.0	42.06	70.5	3.528
-85.5	1.119	-54.0	11.18	-22.5	224.3	9.0	408.6	40.5	35.97	72.0	3.176
-84.0	1.286	-52.5	12.38	-21.0	247.4	10.5	399.2	42.0	30.91	73.5	2.833
-82.5	1.467	-51.0	13.62	-19.5	273.7	12.0	387.9	43.5	26.61	75.0	2.534
-81.0	1.698	-49.5	15.06	-18.0	296.2	13.5	370.6	45.0	23.04	76.5	2.186
-79.5	1.945	-48.0	16.86	-16.5	317.6	15.0	351.5	46.5	20.06	78.0	1.915
-78.0	2.240	-46.5	18.91	-15.0	337.0	16.5	332.7	48.0	17.49	79.5	1.680
-76.5	2.558	-45.0	21.36	-13.5	355.0	18.0	312.8	49.5	15.31	81.0	1.463
-75.0	2.914	-43.5	24.32	-12.0	371.7	19.5	291.3	51.0	13.47	82.5	1.264
-73.5	3.241	-42.0	27.88	-10.5	386.9	21.0	268.3	52.5	11.88	84.0	1.066
-72.0	3.568	-40.5	32.16	-9.0	399.1	22.5	243.8	54.0	10.59	85.5	0.9111
-70.5	3.912	-39.0	37.27	-7.5	409.5	24.0	218.6	55.5	9.368	87.0	0.7331
-69.0	4.260	-37.5	43.50	-6.0	418.3	25.5	192.4	57.0	7.948	88.5	0.6879
-67.5	4.639	-36.0	51.29	-4.5	425.2	27.0	166.9	58.5	7.434	90.0	0.7926
-66.0	5.043	-34.5	60.89	-3.0	430.6	28.5	142.1	60.0	6.757		
-64.5	5.508	-33.0	72.71	-1.5	433.9	30.0	119.3	61.5	6.268		
-63.0	6.054	-31.5	87.18	0.0	435.2	31.5	99.64	63.0	5.721		
-61.5	6.636	-30.0	104.2	1.5	434.4	33.0	83.20	64.5	5.153		
-60.0	7.228	-28.5	124.9	3.0	431.9	34.5	69.73	66.0	4.733		

Electricity Parameter:

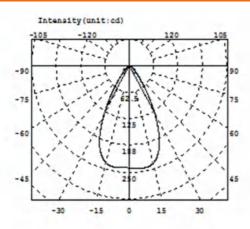
Current I:	0.1000A	Power:	3.250W
Voltage V:	32.50V	PF:	1.000

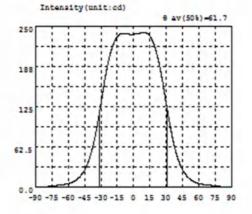
Optical Parameter(Distance=2.559m):

Equivalent Luminous flux: Φ eff= 297.51m Efficiency: Eff=91.551m/W Diffuse angle: $\emptyset(25\%)$: 60.3deg $\emptyset(50\%)$: 46.8deg $\emptyset(75\%)$: 32.7deg $\emptyset(50\%)$: 46.8deg Diffuse angle: $\emptyset(25\%)$: 60.3deg $\emptyset(50\%)$: 46.8deg $\emptyset(75\%)$: 32.7deg $\emptyset(50\%)$: 46.8deg Imax=435.2cd (C=0.0deg,G=0.0deg) C0-180Plane Imax= 435.2cd (G=0.0deg) C0-180Plane I0= 435.2cd









Intensity data: (deg , cd) CO-180

λ	1	λ	1	λ	I	λ	1	λ	1	λ	1
-90.0	0.4331	-58.5	6.711	-27.0	161.0	4.5	238.6	36.0	73.83	67.5	4.026
-88.5	0.4843	-57.0	7.600	-25.5	175.5	6.0	239.1	37.5	62.97	69.0	3.704
-87.0	0.5738	-55.5	8.694	-24.0	188.4	7.5	239.7	39.0	53.46	70.5	3.273
-85.5	0.7270	-54.0	10.00	-22.5	200.0	9.0	240.1	40.5	45.21	72.0	2.902
-84.0	0.8936	-52.5	11.67	-21.0	209.8	10.5	239.9	42.0	38.18	73.5	2.617
-82.5	1.047	-51.0	13.72	-19.5	217.7	12.0	239.0	43.5	32.05	75.0	2.264
-81.0	1.238	-49.5	16.14	-18.0	224.2	13.5	237.3	45.0	26.99	76.5	1.963
-79.5	1.454	-48.0	19.11	-16.5	229.7	15.0	234.1	46.5	22.83	78.0	1.706
-78.0	1.634	-46.5	22.56	-15.0	233.6	16.5	229.7	48.0	19.34	79.5	1.512
-76.5	1.840	-45.0	26.71	-13.5	236.3	18.0	224.3	49.5	16.34	81.0	1.301
-75.0	2.072	-43.5	31.71	-12.0	237.9	19.5	217.1	51.0	13.82	82.5	1.126
-73.5	2.404	-42.0	37.81	-10.5	238.6	21.0	208.5	52.5	11.79	84.0	0.9381
-72.0	2.724	-40.5	44.97	-9.0	238.5	22.5	198.3	54.0	10.12	85.5	0.8056
-70.5	3.119	-39.0	53.35	-7.5	238.2	24.0	186.5	55.5	8.772	87.0	0.6908
-69.0	3.464	-37.5	62.97	-6.0	237.8	25.5	173.1	57.0	7.660	88.5	0.6255
-67.5	3.794	-36.0	73.84	-4.5	237.5	27.0	158.8	58.5	6.781	90.0	0.5987
-66.0	4.115	-34.5	86.23	-3.0	237.0	28.5	143.6	60.0	6.075	2	
-64.5	4.525	-33.0	99.93	-1.5	237.0	30.0	128.5	61.5	5.521		
-63.0	4.950	-31.5	114.4	0.0	237.2	31.5	113.6	63.0	5.032		
-61.5	5.426	-30.0	129.6	1.5	237.5	33.0	99.27	64.5	4.647		
-60.0	6.007	-28.5	145.5	3.0	238.1	34.5	85.94	66.0	4.322		

Electricity Parameter:

Current I:	0.1000A	Power:	1.680W
Voltage V:	16.79V	PF :	1.000

Optical Parameter (Distance=2.559m) :

Equivalent Luminous flux: # eff= 258.31m Efficiency: Eff=153.781m/W Diffuse angle: @(25%): 75.8deg@(50%): 61.7deg@(75%): 49.6deg@(50%): 61.7deg Diffuse angle: @(25%): 76.0deg@(50%): 61.9deg@(75%): 50.1deg@(50%): 61.9deg Imax=240.1cd (C=0.0deg,G=9.5deg) C0-180Plane Imax= 240.1cd (G=9.5deg) C0-180Plane I0= 237.2cd

Sample parameter te HK 44@11-15°Lens



		Standard size	Upper Size limit	Lower size limit	Test result1	Test result2	Test result3	Test result4	Jud gm ent	Remarks	
	diameter	44			44.15	44.18	44.15	44.18	\setminus	Test environment: In 20 ℃ -25 ℃	
1.Size	height	11.3	/		11.43	11.4	11.43	11.4	\backslash	environment to achieve thermal	
	height	9.6			9.62	9.62	9.63	9.64	\backslash	equilibrium after the test.	
			Gate	shear car	not affec	t the appea	arance of th	ne lamp	-	-	
			See	attachme	nt "Appear	rance Inspe	ection Stan	idards"			
2.Appear	anc att	achment		N	lo burr	No burr	No burr	No bu	rr		
e Quality	"Ар	pearance	E	N	o stains	No stains	No stains	No stai	ns	OK	
3.Materia	ıl		PC			Color	Tra	nsparent		OK	
	esting LE	l				CREE15	12			•	
4.Optica I index	FWHM angle K-value fficienc				See lig 18. 2° 5. 27 85. 7%	ght distribu 18.1° 5.29 86.2%	tion curve 18. 4° 5. 13 86. 2%	18. 5° 5. 13 85. 2%			
		the signatu	ure sample		•						
Compreh ve judgn	nensi						Qualified				
Vernier C Quadratic Gauge M Microsco T-Thick C Radius G 2 Ambi temperat of the pro	Number: V Caliper 2D- c H-Heigh I-Tool pe P-Need Gauge R- Gauge E-V	- t dle isual. • size • to	Length changes (mm)	PC pro	duct size	changes v		Siz Siz Siz Siz Siz Siz	ze: 50 ze: 10 ze: 15 ze: 20 ze: 25	Omm OOmm 50mm OOmm 50mm	
Precautio	-										

1. Wear clean gloves during lens assembly to prevent contamination of the lens surface.

2、Take the lens try to avoid touching the total reflection surface.

3、When the lens surface contamination, you can only gently wipe with soft cotton sticky neat neutral solvent, not allowed to wipe with industrial solvents.

Sample parameter te HK 44@11-24°Lens



		Standard size	Upper Size limit	Low size li		Test result1	Test result2	Test result3	Test result4	Jud gm ent	Remarks
	diameter	44			/	44.06	44.06	44.04	44	\backslash	Test environment: In 20 ℃ -25 ℃
1.Size	height	11.3			/	11.34	11.34	11.35	11.37	\backslash	environment to achieve thermal
	height	9.6				9. 58	9.58	9.63	9.6	\backslash	equilibrium after the test.
		-	Gate	shear	car	not affect	the appea	arance of th	ne lamp	-	-
			See	attach	nmei	nt "Appear	ance Inspe	ection Stan	dards"		
2.Appear	anc at	achment			N	lo burr	No burr	No burr	No bu	rr	
e Quality	"Ap	pearance	E		No	o stains	No stains	No stains	No stai	ins	OK
3.Materia							Color	Tra	nsparent		OK
	esting LE						CREE150	7N			
4.Optica I index	FWHM angle K-value					See lig 20. 9° 4. 43	100 pht distribur 21. 1° 4. 48	tion curve 21. 8° 4. 23	21. 8° 4. 23		
	fficiend					89.12%	87.47%	86.42%	86.42%		
	acul See	the signati	ure sample	•		`					
Compreh ve judgn								Qualified			
Remarks				РС	pro	duct size	changes v	with temp	perature	table	2
Vernier C	Number: \ Caliper 2D	-	Length changes						Siz	e: 50)mm
Quadrati	c H-Heigh I-Tool	t	(mm)	0.6 -					-Siz		
Microsco	pe P-Nee	dle		0.4 -					10 Siz	0mm e:	
Radius G	Gauge R- Gauge E-V	ïsual.		0.2 -					并 Siz		
2、 Amb temperat	ient ure on the	e size		0		10	20 20	40	20	0mm	
of the pro	oduct refe on the rig	r to		(J	10	20 30		(°C)		
Precautio											

1、Wear clean gloves during lens assembly to prevent contamination of the lens surface.

2、Take the lens try to avoid touching the total reflection surface.

3、When the lens surface contamination, you can only gently wipe with soft cotton sticky neat neutral solvent, not allowed to wipe with industrial solvents.

Sample parameter te HK 44@11-36°Lens



	-					-			_				
		Standard size	Upper Size limit	Lower size limit	Test result1	Test result2	Test result3	Test result4	Jud gme nt	Remarks			
	diameter	44			44.12	44.12	44.14	44.12	\backslash	Test environment: In 20 ℃ -25 ℃			
1.Size	height	11.3			11.45	11.45	11.44	11.4	\backslash	environment to achieve thermal			
	height	9.6			9.6	9.6	9.65	9.6	\square	equilibrium after the test.			
			Gate	shear ca	n not affec	t the appea	arance of t	he lamp					
		See attachment "Appearance Inspection Standards"											
2.Appea		tachment	E	Ν	No burr	No burr	No burr	No bu	ırr	ОК			
e Quality		opearance	1	N	o stains	No stains	No stains	No sta	ins	Ölt			
3.Materia			PC			Color	Tra	insparent		ОК			
	esting LE					CREE150	7N						
4.Optica	capability				ditions of t		ironment,			e heat dissipation be fully tested and			
lindex	angle				32.1°	32.6°	32°	32°					
	K-value	9			2.77	2.77	2.83	2.83					
	fficien	c			88.10%	88.40%	87.55%	87.55%					
	acul See	the signati	ure sample		`								
Compreł ve judgr							Qualified						
Vernier (Quadrati Gauge M Microsco T-Thick (Number: \ Caliper 2D c H-Heigh I-Tool pe P-Nee Gauge R-	h- ht edle	Length changes (mm)	0.8 0.6 0.4 0.4	oduct siz	e changes	with tem		+ 	Size: 50mm Size: 100mm Size: 150mm Size: 200mm			
2、 Amb temperat of the pro	ure on the oduct refe on the rig	e size r to		0.2	10	20	30	40 (°C	-	Size: 250mm Size: 300mm			

Precautions:

1. Wear clean gloves during lens assembly to prevent contamination of the lens surface.

2、Take the lens try to avoid touching the total reflection surface.

3、When the lens surface contamination, you can only gently wipe with soft cotton sticky neat neutral solvent, not allowed to wipe with industrial solvents.

Sample parameter te HK 44@11-45°Lens



		Standard size	Upper Size limit	Lower size limit	Test resul t1	Test resul t2	Test resul t3	Test resul t4	Test resul t5		Test resul t7		Jud gm ent	Remarks
	diameter	44			44.1	44. 2	44.2	44.2	44.2	44.2	44.2	44.2	\backslash	Test environment: In 20 ℃ -25
1.Size	height	11.3	\backslash		11. 3 7	11.4	11.4	11.4	11.4	11.4	11.3	11.4	\sum	environment to achieve
	height	9.6	\searrow		9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63	\square	thermal equilibrium
			Gate	e shear c	an not	affect	t the a	ppeara	ance o	f the la	amp			
			See	e attachn	nent "A	ppear	ance l	nspec	tion St	tandar	ds"			
2.Appear	anc at	achment			No bu	Irr	No	burr	No	burr	Ν	lo bur	r	
e Quality	"Ap	pearance	E		No sta	ins	No s	tains	No s	tains	N	o stair	IS	OK
3.Materia			PC				Co	olor		Tra	nspar	ent		OK
	esting LE						CRE	E1512						
4.Optica I index			he source of the test, if it is required to be out of range. According to the heat dissipati e lamp and the actual conditions of the use environment, the lens should be fully teste See light distribution curve											
	angle				46.8	45.4	45.5	47.4	46.9	46.4	46.7	44.9	\sim	
	K-value												\sim	
	fficiend				####	####	####	####						$\overline{}$
	aculiSee	the signati	ure samp	e		`		1	1	1		1		
Compreh ve judgn	nensi		•						Qualif	ied				
Remarks					produ	ict size	e chai	nges v	vith to	empe	rature	e tab	le	
	Number: \ Caliper 2D		Length change	0.0								→ Siz	e، 50)mm
	c H-Heigh		(mm)								* -)0mm
Gauge M	•								X		× _	Siz		
	Microscope P-Needle 0.4								X		-	× Siz		
T-Thick Gauge R- Radius Gauge E-Visual.							(V					≭ Siz	e: 25	50mm
	2、 Ambient					- AND					• _	-Siz	:e: 30)0mm
	ure on the	e size		0 📄		1	1		1		Г			
of the pro	oduct refe	r to		0		10	20)	30	Z	10			
the table	on the rig	ht									(°C)			
Precautio	ns.													

1、Wear clean gloves during lens assembly to prevent contamination of the lens surface.

2、Take the lens try to avoid touching the total reflection surface.

3、When the lens surface contamination, you can only gently wipe with soft cotton sticky neat neutral solvent, not allowed to wipe with industrial solvents.

Sample parameter te HK 44@11-60°Lens



		Standard size	Upper Size limit	Lower size limit	Test result1	Test result2	Test result3	Test result4	Jud gm ent	Remarks				
	diameter	• 44	\backslash		44.04	44.06	44.05			Test environment: In 20 ℃ -25 ℃				
1.Size	height	11.3			11.32	11.31	11.3		\square	environment to achieve thermal				
	height	9.6	/		9.56	9.55	9.54		\backslash	equilibrium after the test.				
		-	-											
	See attachment "Appearance Inspection Standards"													
2.Appear	anc at	tachment	_	Ν	lo burr	No burr	No burr	No bu	rr					
e Quality	"Ap	opearance	E	N	o stains	No stains	No stains	No stai	ns	OK				
3.Materia			PC			Color	Tra	nsparent		ОК				
	esting LE	1				CREE150	7N			•				
4.Optica I index	FWHM angle K-value				See light distribution curve					Id be fully tested				
	fficien	c			92.03%	91.62%	90.15%	89.69%						
	acul See	the signatu	ure sample	•	`									
Compreh ve judgn							Qualified							
Remarks	:			PC proc	duct size	changes w	/ith temp	erature t	able					
	Number: \			0.8					· •	- O				
	aliper 2D c H-Heigh		changes (mm)	0.6						50mm 100mm				
Gauge N			•					,		150mm				
	pe P-Nee	dle		0.4						200mm				
T-Thick (-	/iou ol		0.2		N.				250mm				
2、 Amb	auge E-∖ ient	isuai.					•	s	ize: 3	300mm				
	ure on the	e size		0	10	20	30 40	h						
-	oduct refe on the rig			0	10	20 .	50 40	(°C)						
Precautio	ons:													

1、Wear clean gloves during lens assembly to prevent contamination of the lens surface.

2、Take the lens try to avoid touching the total reflection surface.

3、When the lens surface contamination, you can only gently wipe with soft cotton sticky neat neutral solvent, not allowed to wipe with industrial solvents.

Packaging Information

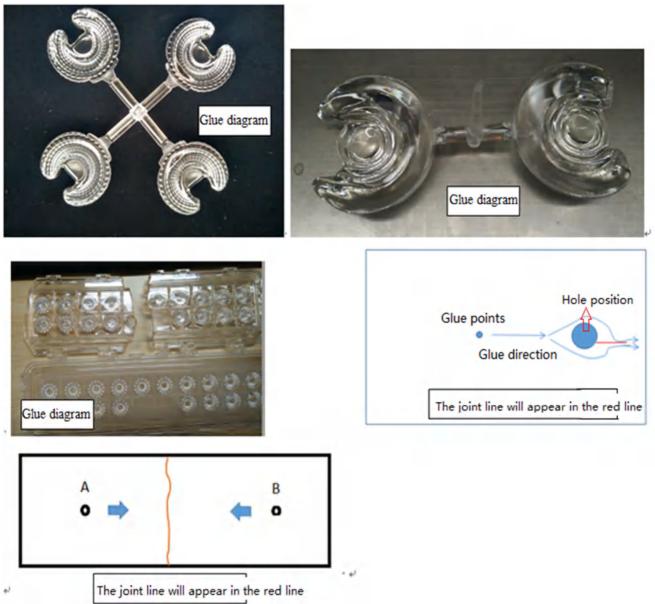


PN		HK-44@11-15-D6-20-	-1g-1	Product Name	HK 44@11-15°Lens		3	
Product material		PC		Customer				
Package diagram		Single Vacuum package Box package						
Product packing		18	A/ Box	4	pcs/Layer			
		18	Layer/Box	1296	A/ Carton			
	NO.	Part No	Part name	Size	Dosage	Unit	Remarks	
	1	2.07.0062	Blister box	23cm*21cm	72	BAG		
Declaria	2	2.08.0001	PE film	25cm*27cm	72	PCS		
Packagin g Materials	3	2.06.0005	Reel label paper	62mm*42mm	72	PCS		
Materials .	4	2.06.0005	Box label paper	62mm*70mm	1	PCS		
	5	2.06.0003	big plate	46cm*42cm	19	PCS		
	6	2.06.0011	big flat carton	48cm*44cm*37cm	1	PCS		
Remarks	The loose packing is not subject to this specification. Customer's requirements shall prevail							

Special notice

When gule pass through holes, columns and other structures, or part of the thin structure, will form a weld line. The product which uses multi-point injection welding line will appear because of the combination of sol, as shown below:

Syntneti



Please note :

The appearance of lines in the structure of the product as well as at the screw hole is a normal phenomenon, will not affect the actual use of the product, and can not be avoided at this stage.



Appearance inspection standards

1 Operating procedures

1.1.1Sampling standards, sampling plan and AQL

Test level : GB/T2828.1-2012The first part is according to the acceptance quality limit (AQL) retrieval batch inspection sampling plan, general inspection level Π level, CR class defect coefficient 0, MA defect rejection level AQL = 0.65, MI class defect rejection level AQL = 1.0; defect level please see 5.4.

2 Code table

Code	Code description	Unit	Code	Code description	Unit
N	Amount/pcs	pcs	D	Diameter	mm
L	Length	mm	Н	Depth	mm
W	Width	mm	DS	Distance	mm
S	Proportion	mm²	SS	Offset	mm

3 Test conditions

3.1 Sight distance and working hours: Sight distance should be 30-35cm, each side of the inspection time does not exceed 12s, the visual angle of 45-135 degrees;

3.2 Light: 2x40w cool white fluorescent lamp, the light source is 500-550mm away from the lens surface; in order to make the appearance defect can be correctly recognized, the illumination should be 500-1000Lux, and the observation time is 10 seconds.3.3 Visual inspection staff should be 1.0 (including corrected visual acuity) above, no color blindness, color weakness.

4 Appearance inspection standards

Test items	Judging standard	Inspection equipment	Defect level		
reschems		Testing method	МІ	MA	CR
	When start the machine and process, all products have to check the appearance of the sample, the appearance of the sample is divided into qualified samples and limited samples.				
	1: Qualified sample refers to the appearance and structure standard of the product which recognized by the client, the sample size should be confirmed before mass production;	Sample comparison , visual			V

	2: The limited sample refers to the limit of a particular exceptionally developed sample. Limit the sample only for its specific point of exception to confirm; The priority is higher than the other criteria in this table. When there is a limited sample, the limit sample shall prevail.			
Raw edge	Not allowed to affect the size and assembly	Visual, point card	V	
Scratch	1: Non-optical surface and non-exposed surface scratches should be visually insignificant and the length is less than 1/10 of the maximum surface size.	Visual, point card, calipers	V	
Fingerprint	Fingerprints are not allowed on all products	Visual	V	
Foreign objects, black spots, white spots	The product may not be attached to foreign objects, including oil, fiber, dregs of water gap and so on			V
Deformation	Insufficient filling shall not affect the appearance of the assembly and the exposed surfaces.	Visual, feeler		V
Poor ejection	Products may not appear bad ejection, including no convex top, thimble printed on the assembly surface shall not be higher than the product surface, non-assembled surface thimble height should not exceed the product size tolerances; thimble printing should be less than the product surface and no more than 0.3; thimble surface treatment should be consistent with the product side. Ejection strain: the optical surface and the appearance of the exposed surface after assembly are not allowed to have a strain, and the structural surface does not allow visual obvious strain.	Visual, point card	V	
Insufficient filling	Insufficient filling shall not affect the appearance of the assembly and the exposed surfaces, The signature sample shall prevail.	Visual, point card	V	
Shrink	When the entire surface of the product shrinks, the optical properties and dimensions must meet the requirements, and the visual will not significantly affect the appearance.Part shrink reference point defects	Visual, point card	V	
Flow marks、Welding line	 Product does not allow the presence of flow marks and welding lines unless the structure can not be avoided; The remaining flow marks shall not appear in the optical surface, a single L ≤ 10mm, no more than two 	Visual	V	

Bubble	No bubbles are allowed	Visual		V	
Foreign objects, black spots, white spots	Not obvious or D ≤ 0.3mm black spots and foreign bodies in the area of 100x100mm not more than 1; Exceeded foreign matter black spots is judged bad.	Visual, point card	V		
Damaged	No damage is allowed	Visual			\checkmark
Cold glue	Optical surface may not have cold glue, non- optical surface cold glue should meet the visual is not obvious.	Visual	\checkmark		
	1: Do not affect the product size, shall not penetrate the optical surface, the cut should be smooth;	Visual			
Bad incision	2: Laser cutting products, the optical surface burns shall not occur after the processing is completed. Beading must not affect product installation				V
	3: Three molds and hot runner gate shall not appear residue.				
Scrub	Scrub surface should be uniform, off the scrub phenomenon should not be obvious , A single off scrub imprint requires $D \le 1$ mm and no more than 1 area within a 50x50 mm area	Visual		~	