



HERCULUX
恒坤光电

Chengdu HercuLux Photoelectric
Technology Co.,Ltd
Product Approval

Approval number :

Customer :

PN	Code	Product
HK-75@31-15-D12-20-1g-1	1. 01. 6823	HK-75@31-15° Lens
HK-75@31-24-D12-20-1g-1	1. 01. 6833	HK-75@31-24° Lens
HK-75@31-38-D12-20-1g-1	1. 01. 6834	HK-75@31-38° Lens
HK-75@31-60-D12-20-1g-1	1. 01. 81470	HK-75@31-60° Lens

Manufacturer : Chengdu HercuLux Photoelectric Technology Co.,Ltd



Supplier confirmation				Client confirmation			
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 Park

Phone : 028-85887727 (801) 028-85887990 (801)

Fax : 028-85887730

www.hkoptics.com

Sales Dept: Shenzhen Nanshan District Nanshan Cloud Valley Innovation Industrial Park Comprehensive Service Building,

TEL: 0755-2937 1541

FAX: 0755-2907 5140

*Approval In duplicate , for both supplier and customer.



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Product Approval

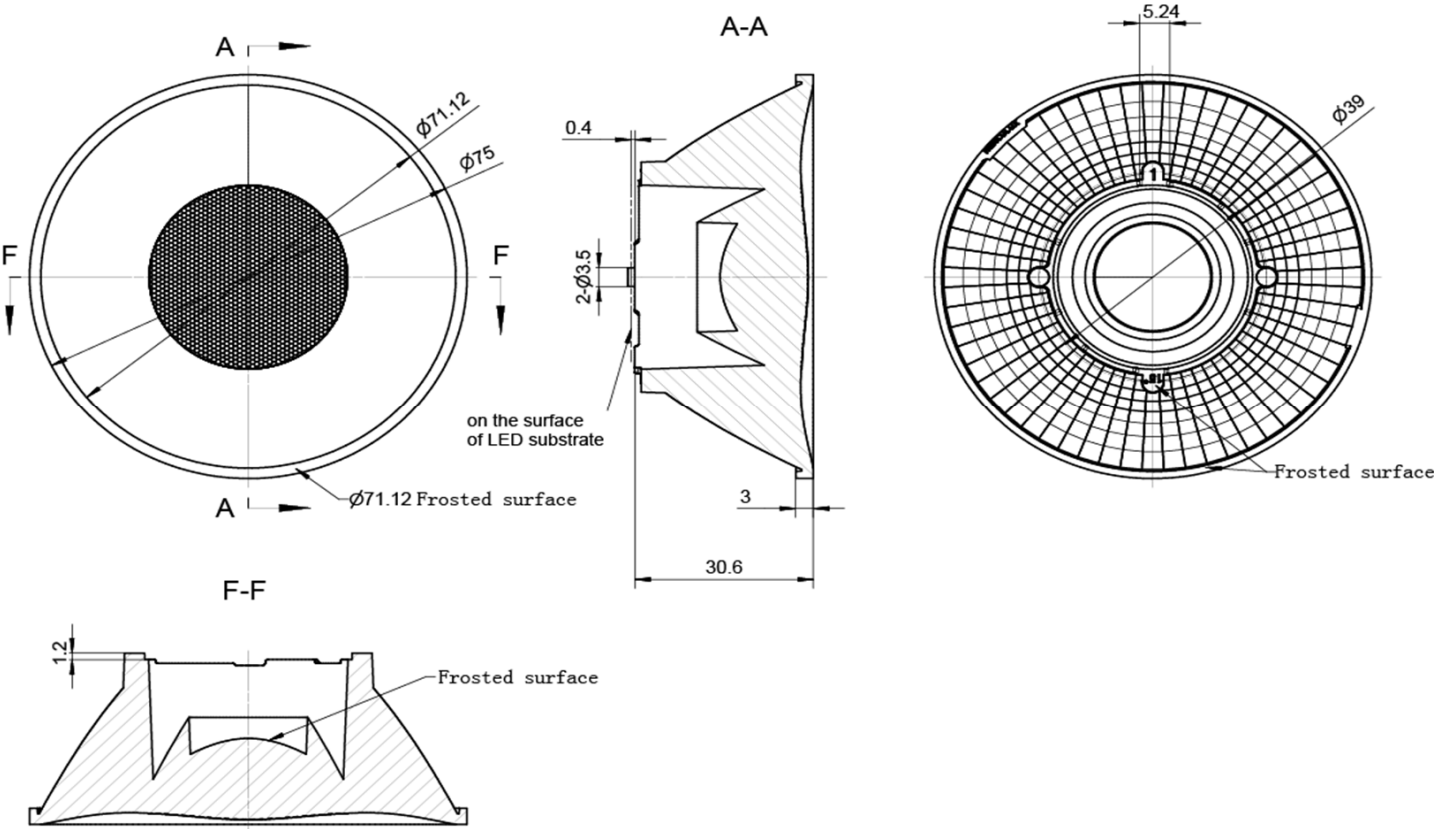
TEL: 0755-2937 1541

FAX: 0755-2907 5140

www.hkoptics.com

Date updated: 2019/2/16

Product Picture:		
PN:	HK-75@31-15-D12-20-1g-1	
Size(L*W*H/Φ*H):	Φ:75mm; H:31.8mm	
1.07.81418_HK-166@03-0223-S	PMMA	
Effiency:	\	
Temperature(Topr):	-40°C to +80°C	
FWHM:	15°/24°/38°/60°	
Matched LES:	D12	

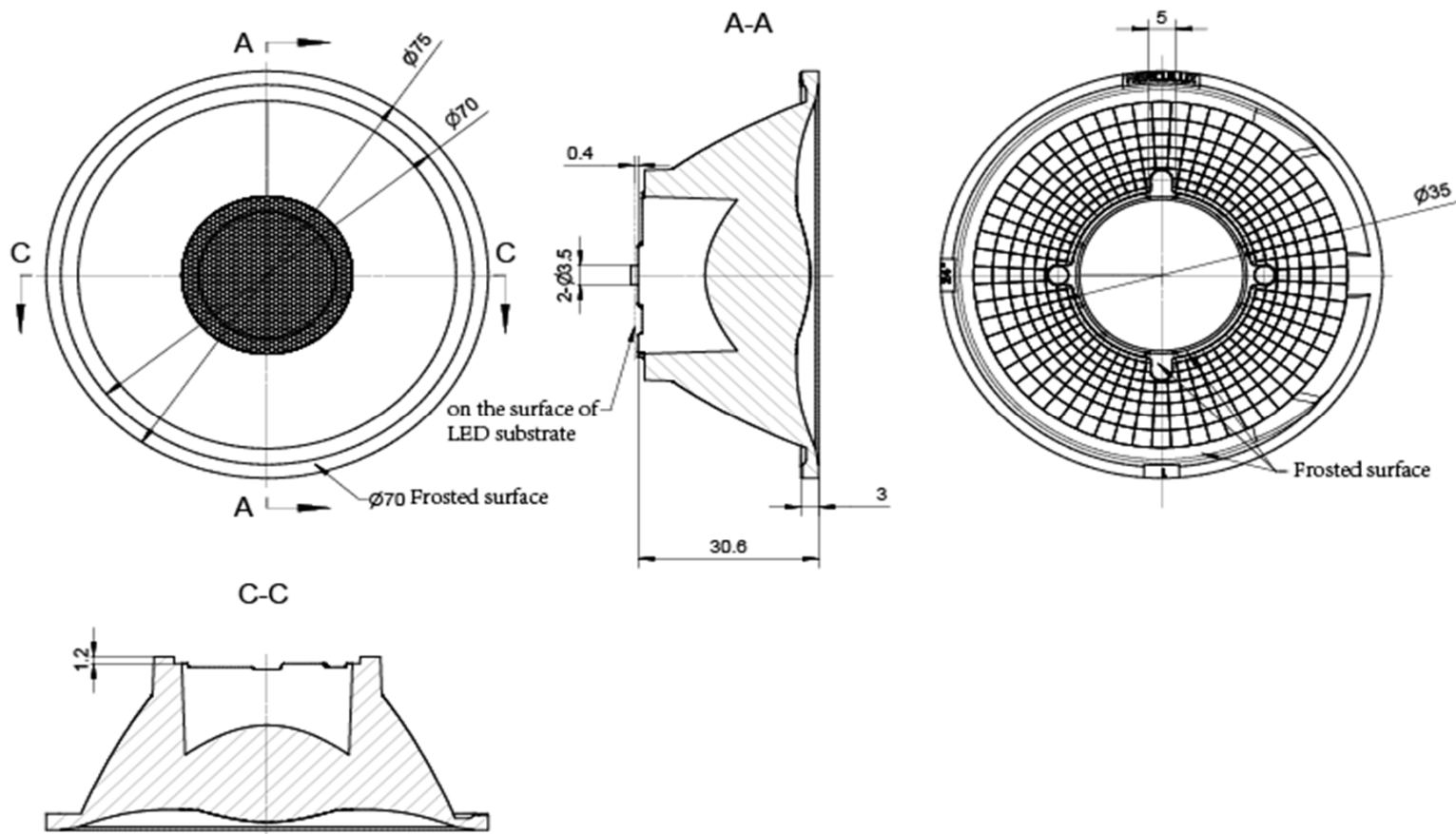


Technical remark:

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

Optical design			HK-75@31-15°Lens		HK-75@31-15-D12-20-1g-1		
Structure design						1.01.6823	
Review					umber of drawin	qty	weight
Validation			Material: PMMA		CDHK		

MT5 Tolerance table (mm)	Basic size	<3	3~10	24~65	65~140	140~250	250~450	>450		
	olerance valu	±0.1	±0.15	±0.35	±0.50	±0.80	±1.2	±2.0		

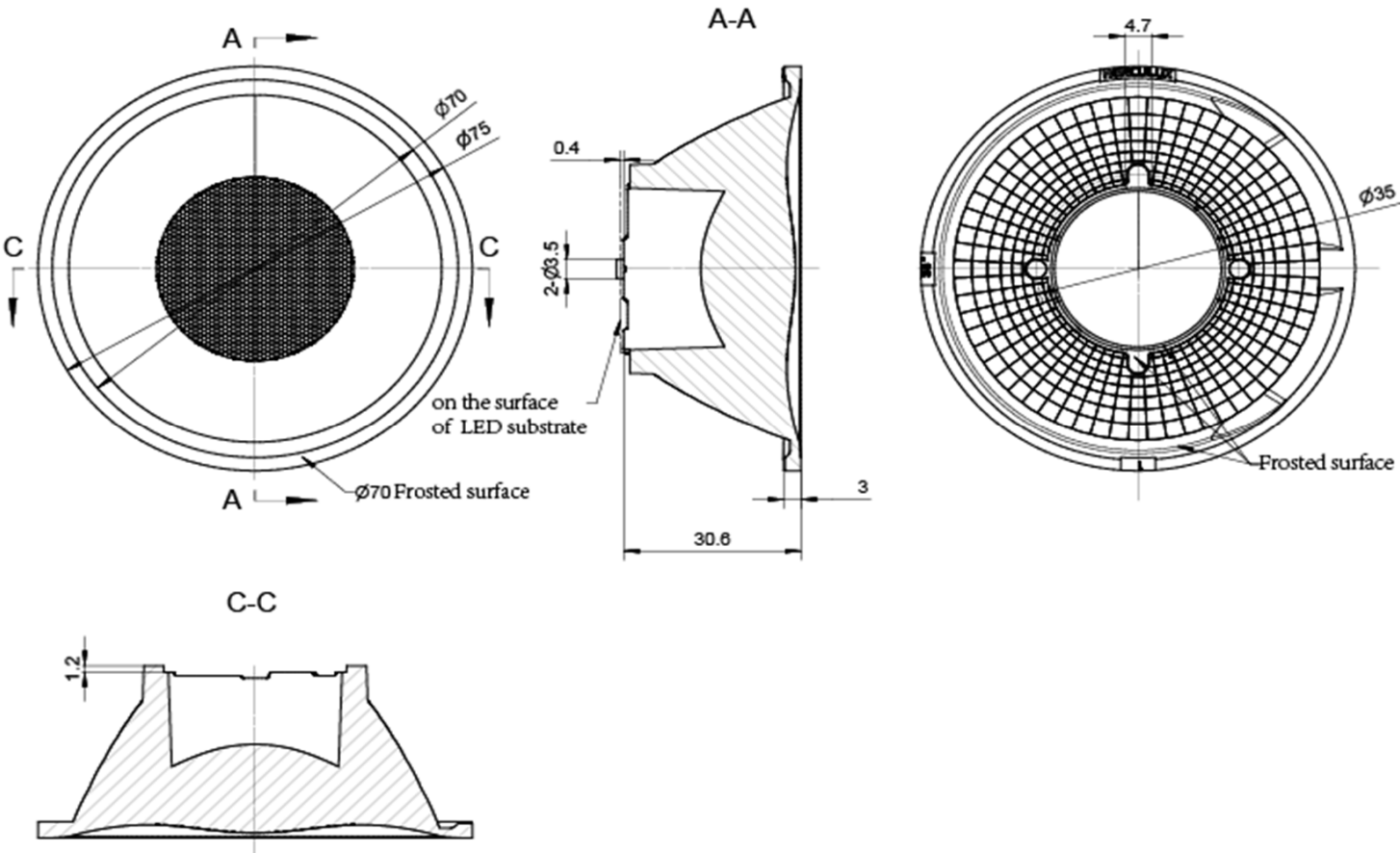


Technical remark:

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

Optical design			HK-75@31-24°Lens		HK-75@31-24-D12-20-1g-1		
Structure design					1.01.6833		
Review					umber of drawin	qty	weight
Validation			Material: PMMA		CDHK		

MT5 Tolerance table (mm)	Basic size	<3	3~10	24~65	65~140	140~250	250~450	>450		
	olerance valu	±0.1	±0.15	±0.35	±0.50	±0.80	±1.2	±2.0		

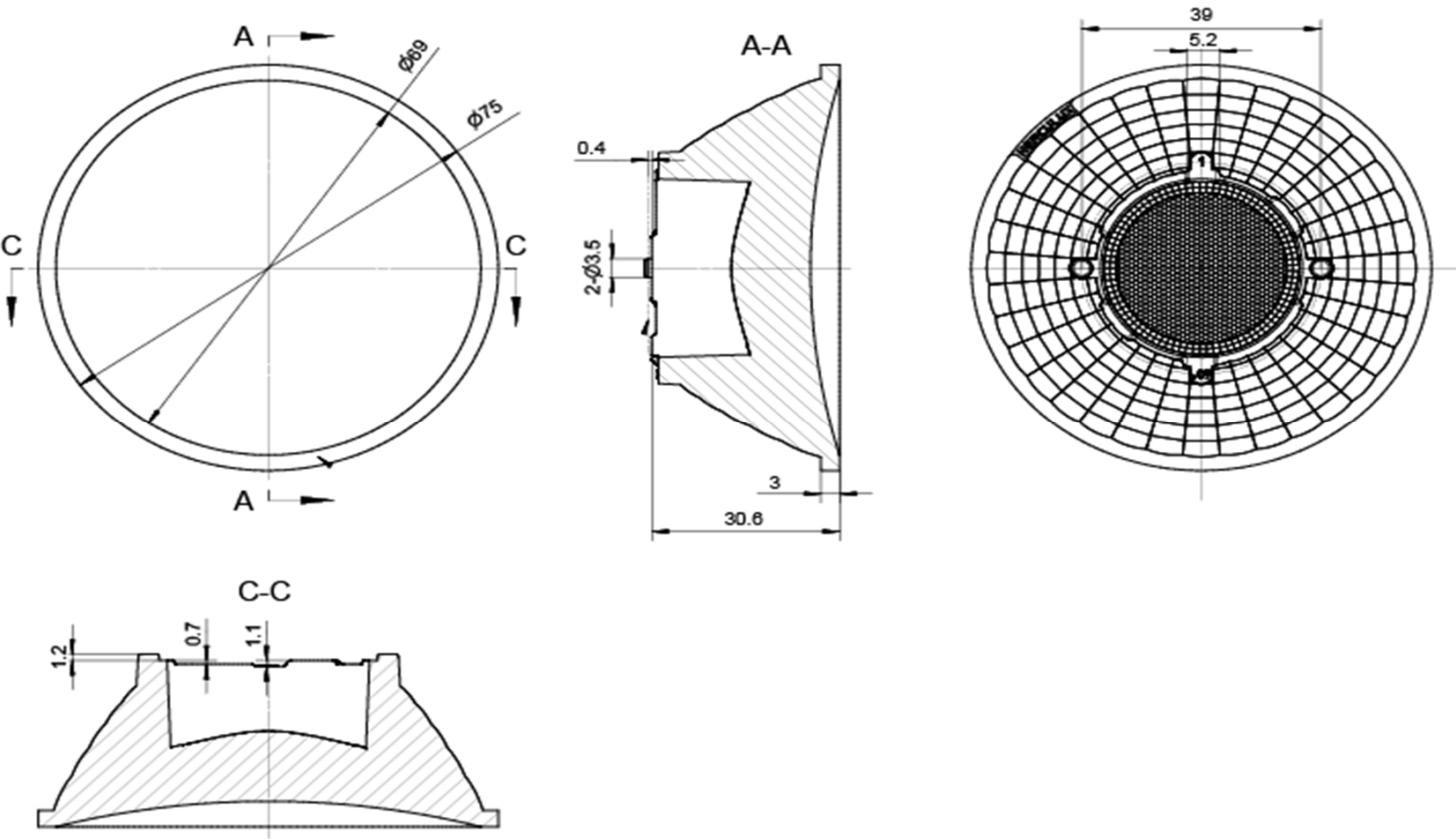


Technical remark:

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

Optical design			HK-75@31-38°Lens		HK-75@31-38-D12-20-1g-1		
Structure design						1.01.6834	
Review					umber of drawin	qty	weight
Validation			Material:	PMMA	CDHK		

MT5 Tolerance table (mm)	Basic size	<3	3~10	24~65	65~140	140~250	250~450	>450		
	olerance valu	±0.1	±0.15	±0.35	±0.50	±0.80	±1.2	±2.0		

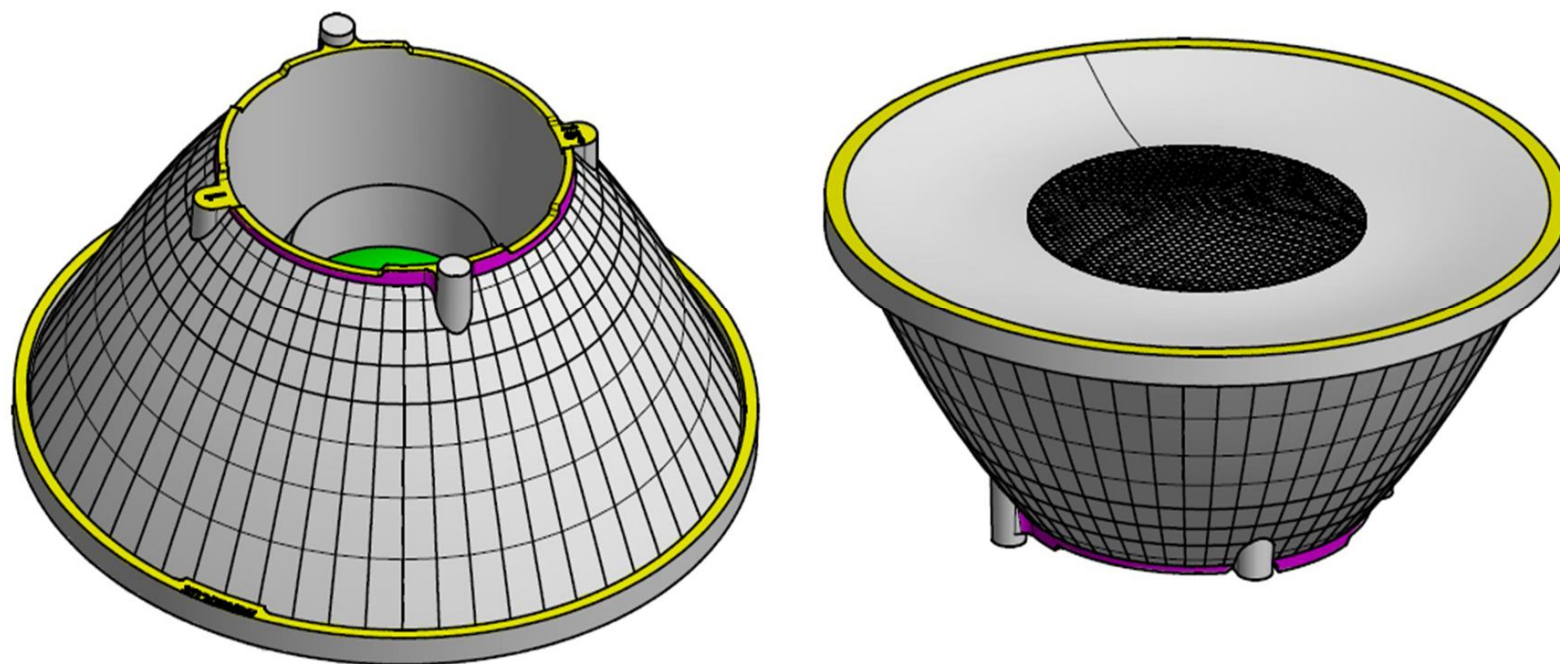


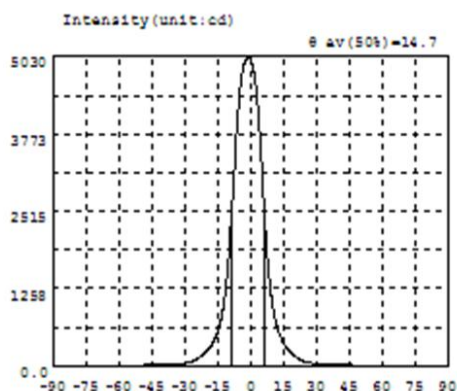
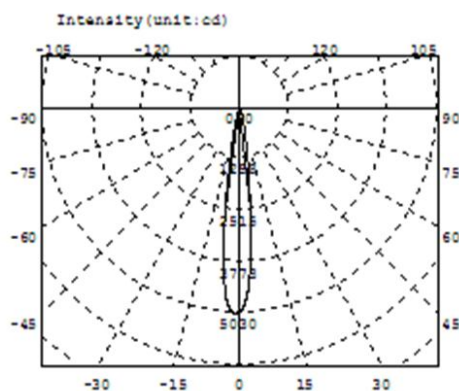
Technical remark:

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

Optical design			HK-75@31-60°Lens		HK-75@31-60-D12-20-1g-1		
Structure design						1.01.81470	
Review					umber of drawin	qty	weight
Validation			Material:	PMMA	CDHK		

MT5 Tolerance table (mm)	Basic size	<3	3~10	24~65	65~140	140~250	250~450	>450		
	olerance valu	±0.1	±0.15	±0.35	±0.50	±0.80	±1.2	±2.0		





Intensity data:(deg , cd) CO-180

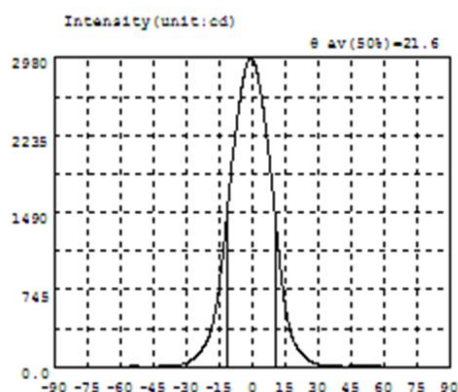
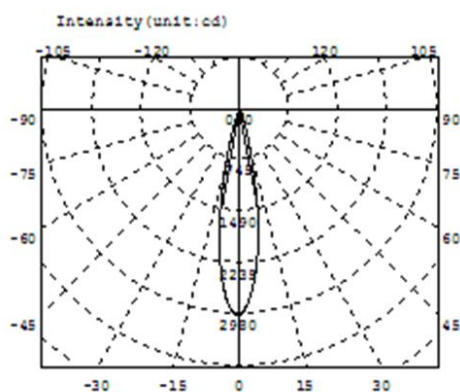
A	I	A	I	A	I	A	I	A	I	A	I
-90.0	0.5478	-58.5	8.579	-27.0	74.26	4.5	3603	36.0	20.37	67.5	5.109
-88.5	0.8414	-57.0	9.197	-25.5	95.92	6.0	2653	37.5	18.60	69.0	4.736
-87.0	1.071	-55.5	9.833	-24.0	124.4	7.5	1811	39.0	17.48	70.5	4.391
-85.5	1.314	-54.0	10.49	-22.5	161.7	9.0	1243	40.5	16.62	72.0	4.082
-84.0	1.724	-52.5	11.20	-21.0	206.3	10.5	875.3	42.0	16.44	73.5	3.776
-82.5	2.156	-51.0	11.91	-19.5	261.0	12.0	645.0	43.5	15.23	75.0	3.452
-81.0	2.501	-49.5	12.63	-18.0	332.9	13.5	491.8	45.0	13.96	76.5	3.163
-79.5	2.806	-48.0	13.37	-16.5	430.3	15.0	372.8	46.5	12.68	78.0	2.895
-78.0	3.076	-46.5	14.12	-15.0	564.1	16.5	290.1	48.0	11.98	79.5	2.564
-76.5	3.396	-45.0	15.02	-13.5	760.0	18.0	229.5	49.5	11.27	81.0	2.222
-75.0	3.796	-43.5	16.13	-12.0	1068	19.5	180.1	51.0	10.59	82.5	1.877
-73.5	4.200	-42.0	17.49	-10.5	1552	21.0	139.1	52.5	10.01	84.0	1.460
-72.0	4.519	-40.5	18.66	-9.0	2277	22.5	106.8	54.0	9.419	85.5	1.059
-70.5	4.850	-39.0	19.88	-7.5	3160	24.0	82.42	55.5	8.850	87.0	0.7744
-69.0	5.209	-37.5	21.53	-6.0	4016	25.5	63.91	57.0	8.311	88.5	0.5900
-67.5	5.591	-36.0	23.78	-4.5	4587	27.0	50.34	58.5	7.746	90.0	0.4623
-66.0	5.967	-34.5	27.06	-3.0	4908	28.5	40.54	60.0	7.244		
-64.5	6.401	-33.0	31.52	-1.5	5020	30.0	33.82	61.5	6.740		
-63.0	6.874	-31.5	37.79	0.0	4977	31.5	28.94	63.0	6.287		
-61.5	7.401	-30.0	46.31	1.5	4768	33.0	25.33	64.5	5.856		
-60.0	7.979	-28.5	58.18	3.0	4342	34.5	22.51	66.0	5.492		

Electricity Parameter:

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

Optical Parameter(Distance=2.559m):

Equivalent Luminous flux: $\Phi_{eff}=513.0lm$ Efficiency: $Eff=157.87lm/W$
Diffuse angle: $\theta(25\%): 20.2deg$ $\theta(50\%): 14.7deg$ $\theta(75\%): 10.5deg$ $\theta(50\%): 14.7deg$
Diffuse angle: $\theta(25\%): 20.2deg$ $\theta(50\%): 14.8deg$ $\theta(75\%): 10.7deg$ $\theta(50\%): 14.8deg$
Imax=5028cd (C=0.0deg, G=-1.0deg) CO-180Plane Imax= 5028cd(C=-1.0deg)
CO-180Plane I0= 4977cd



Intensity data: (deg , cd) C0-180

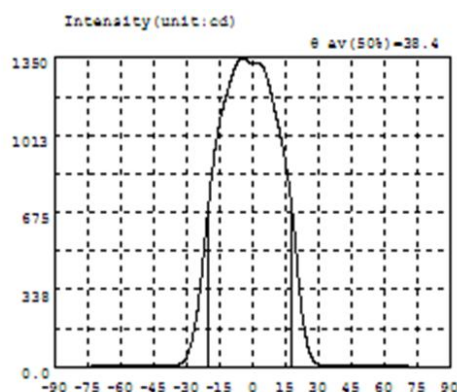
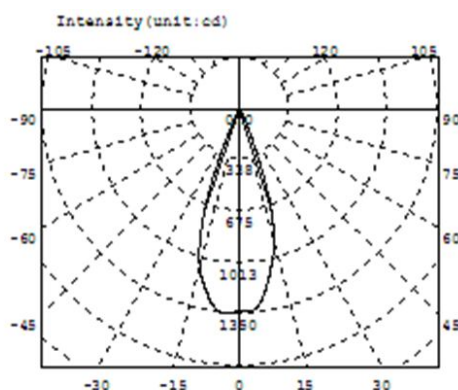
A	I	A	I	A	I	A	I	A	I	A	I
-90.0	0.3052	-58.5	7.409	-27.0	76.36	4.5	2568	36.0	10.64	67.5	3.895
-88.5	0.4203	-57.0	7.732	-25.5	102.4	6.0	2339	37.5	9.417	69.0	3.543
-87.0	0.6750	-55.5	7.892	-24.0	136.2	7.5	2072	39.0	8.560	70.5	3.201
-85.5	0.8270	-54.0	8.029	-22.5	180.2	9.0	1766	40.5	8.005	72.0	2.842
-84.0	0.8795	-52.5	8.048	-21.0	235.2	10.5	1458	42.0	7.771	73.5	2.490
-82.5	1.045	-51.0	7.855	-19.5	305.2	12.0	1128	43.5	7.826	75.0	2.084
-81.0	1.275	-49.5	7.658	-18.0	410.1	13.5	829.4	45.0	8.072	76.5	1.784
-79.5	1.504	-48.0	7.518	-16.5	566.6	15.0	587.7	46.5	8.310	78.0	1.538
-78.0	1.799	-46.5	7.392	-15.0	788.2	16.5	421.5	48.0	8.511	79.5	1.368
-76.5	2.108	-45.0	7.385	-13.5	1047	18.0	297.6	49.5	9.091	81.0	1.213
-75.0	2.475	-43.5	7.530	-12.0	1356	19.5	222.3	51.0	9.253	82.5	1.179
-73.5	2.807	-42.0	7.931	-10.5	1680	21.0	168.9	52.5	9.151	84.0	1.456
-72.0	3.165	-40.5	8.539	-9.0	1991	22.5	130.2	54.0	8.967	85.5	1.265
-70.5	3.559	-39.0	9.499	-7.5	2264	24.0	97.80	55.5	8.726	87.0	0.9243
-69.0	3.907	-37.5	10.76	-6.0	2508	25.5	72.03	57.0	8.354	88.5	0.5971
-67.5	4.265	-36.0	12.76	-4.5	2714	27.0	52.22	58.5	7.832	90.0	0.4374
-66.0	4.754	-34.5	16.30	-3.0	2875	28.5	38.18	60.0	7.230		
-64.5	5.369	-33.0	21.91	-1.5	2961	30.0	27.66	61.5	6.359		
-63.0	6.005	-31.5	29.69	0.0	2973	31.5	20.26	63.0	5.442		
-61.5	6.559	-30.0	40.87	1.5	2901	33.0	15.31	64.5	4.726		
-60.0	7.030	-28.5	55.75	3.0	2756	34.5	12.41	66.0	4.282		

Electricity Parameter:

Current I: 0.1000A Power: 3.470W
Voltage V: 34.70V PF: 0.000

Optical Parameter(Distance=2.559m):

Equivalent Luminous flux: $\Phi_{\text{eff}} = 496.41\text{lm}$ Efficiency: $\text{Eff} = 143.07\text{lm/W}$
Diffuse angle: @ (25%): 29.1deg @ (50%): 21.6deg @ (75%): 14.2deg @ (50%): 21.6deg
Diffuse angle: @ (25%): 29.1deg @ (50%): 21.7deg @ (75%): 14.3deg @ (50%): 21.7deg
 $\text{Imax} = 2978\text{cd}$ (C=0.0deg, C=-0.5deg) C0-180Plane $\text{Imax} = 2978\text{cd}$ (G=-0.5deg)
C0-180Plane $\text{I0} = 2973\text{cd}$



Intensity data: (deg , cd) CO-180

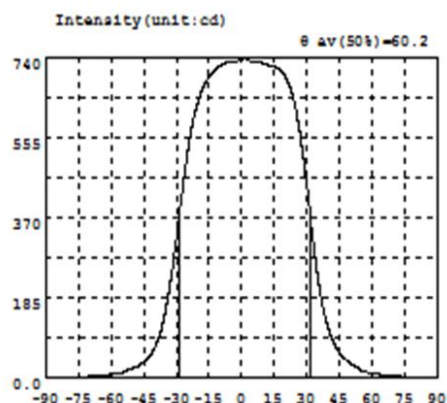
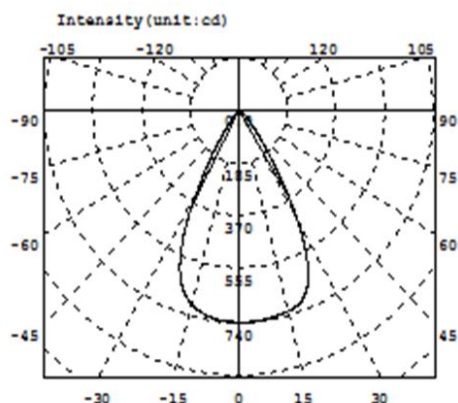
A	I	A	I	A	I	A	I	A	I	A	I
-90.0	0.3312	-58.5	5.283	-27.0	136.2	4.5	1316	36.0	6.449	67.5	4.691
-88.5	0.3953	-57.0	4.802	-25.5	217.8	6.0	1284	37.5	5.945	69.0	4.227
-87.0	0.4968	-55.5	4.515	-24.0	323.9	7.5	1234	39.0	5.599	70.5	3.741
-85.5	0.6002	-54.0	4.420	-22.5	460.4	9.0	1171	40.5	5.245	72.0	3.223
-84.0	0.8299	-52.5	4.410	-21.0	607.5	10.5	1106	42.0	4.994	73.5	2.759
-82.5	1.111	-51.0	4.486	-19.5	748.0	12.0	1045	43.5	4.747	75.0	2.317
-81.0	1.353	-49.5	4.650	-18.0	873.8	13.5	976.0	45.0	4.431	76.5	1.948
-79.5	1.623	-48.0	4.954	-16.5	978.0	15.0	897.7	46.5	4.215	78.0	1.599
-78.0	1.994	-46.5	5.338	-15.0	1064	16.5	800.6	48.0	4.041	79.5	1.372
-76.5	2.366	-45.0	5.972	-13.5	1128	18.0	683.1	49.5	3.965	81.0	1.097
-75.0	2.777	-43.5	6.272	-12.0	1180	19.5	543.9	51.0	3.945	82.5	0.8638
-73.5	3.352	-42.0	6.444	-10.5	1230	21.0	375.9	52.5	3.992	84.0	0.6706
-72.0	3.939	-40.5	6.878	-9.0	1279	22.5	244.9	54.0	4.102	85.5	0.5651
-70.5	4.463	-39.0	7.460	-7.5	1316	24.0	145.0	55.5	4.325	87.0	0.4756
-69.0	4.971	-37.5	8.261	-6.0	1338	25.5	79.39	57.0	4.698	88.5	0.4432
-67.5	5.436	-36.0	9.189	-4.5	1344	27.0	40.31	58.5	5.059	90.0	0.4076
-66.0	5.762	-34.5	10.64	-3.0	1343	28.5	22.23	60.0	5.299		
-64.5	5.950	-33.0	13.58	-1.5	1331	30.0	13.65	61.5	5.458		
-63.0	6.025	-31.5	21.28	0.0	1325	31.5	9.747	63.0	5.407		
-61.5	5.958	-30.0	41.37	1.5	1328	33.0	8.044	64.5	5.262		
-60.0	5.689	-28.5	82.11	3.0	1324	34.5	7.122	66.0	5.044		

Electricity Parameter:

Current I: 0.1000A Power: 3.230W
Voltage V: 32.29V PF: 1.000

Optical Parameter (Distance=2.559m):

Equivalent Luminous flux: $\Phi_{\text{eff}} = 500.81\text{lm}$ Efficiency: $\text{Eff} = 155.06\text{lm/W}$
Diffuse angle: @ (25%): 45.1deg @ (50%): 38.4deg @ (75%): 28.7deg @ (50%): 38.4deg
Diffuse angle: @ (25%): 45.3deg @ (50%): 38.6deg @ (75%): 29.3deg @ (50%): 38.6deg
 $I_{\text{max}} = 1344\text{cd}$ (C=0.0deg, G=-4.5deg) CO-180Plane $I_{\text{max}} = 1344\text{cd}$ (G=-4.5deg)
CO-180Plane $I_0 = 1325\text{cd}$



Intensity data: (deg , cd) C0-180

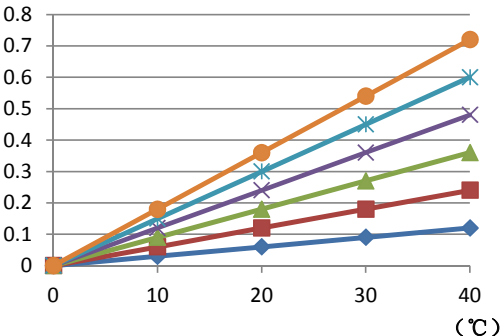
A	I	A	I	A	I	A	I	A	I	A	I
-90.0	0.4713	-58.5	10.58	-27.0	444.9	4.5	730.3	36.0	198.2	67.5	6.636
-88.5	0.5992	-57.0	11.58	-25.5	500.0	6.0	728.6	37.5	159.4	69.0	6.110
-87.0	0.7265	-55.5	12.96	-24.0	549.3	7.5	728.5	39.0	128.8	70.5	5.642
-85.5	0.8677	-54.0	14.53	-22.5	589.4	9.0	727.7	40.5	104.4	72.0	4.862
-84.0	1.071	-52.5	18.27	-21.0	621.8	10.5	725.2	42.0	85.09	73.5	4.420
-82.5	1.172	-51.0	21.60	-19.5	646.9	12.0	722.4	43.5	70.10	75.0	4.210
-81.0	1.274	-49.5	24.46	-18.0	667.5	13.5	720.0	45.0	58.64	76.5	3.530
-79.5	1.487	-48.0	27.75	-16.5	683.5	15.0	717.9	46.5	49.51	78.0	2.844
-78.0	2.048	-46.5	32.14	-15.0	695.6	16.5	714.4	48.0	42.43	79.5	2.349
-76.5	2.726	-45.0	37.27	-13.5	704.3	18.0	709.1	49.5	36.75	81.0	1.885
-75.0	3.100	-43.5	44.12	-12.0	711.2	19.5	699.8	51.0	31.69	82.5	1.737
-73.5	3.409	-42.0	53.08	-10.5	717.9	21.0	685.9	52.5	27.21	84.0	1.683
-72.0	3.800	-40.5	65.22	-9.0	722.7	22.5	666.2	54.0	21.03	85.5	1.549
-70.5	4.413	-39.0	81.84	-7.5	726.2	24.0	638.7	55.5	17.17	87.0	1.354
-69.0	4.880	-37.5	104.0	-6.0	728.4	25.5	601.3	57.0	15.04	88.5	1.275
-67.5	5.225	-36.0	132.5	-4.5	729.3	27.0	554.3	58.5	13.46	90.0	1.161
-66.0	5.666	-34.5	171.0	-3.0	730.2	28.5	500.3	60.0	12.32		
-64.5	6.272	-33.0	214.9	-1.5	732.3	30.0	441.6	61.5	11.09		
-63.0	7.254	-31.5	265.3	0.0	736.0	31.5	368.7	63.0	9.772		
-61.5	8.533	-30.0	323.1	1.5	737.6	33.0	303.9	64.5	8.435		
-60.0	9.703	-28.5	385.7	3.0	733.3	34.5	246.6	66.0	7.385		

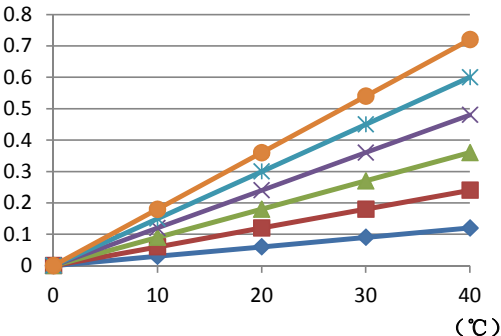
Electricity Parameter:

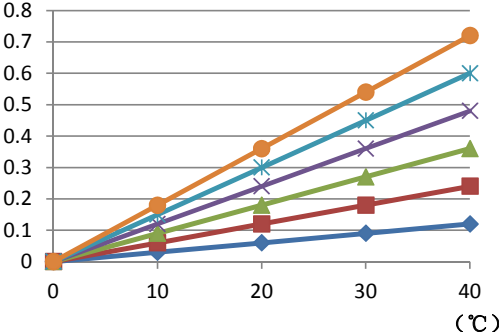
Current I: 0.1000A Power: 3.370W
Voltage V: 33.70V PF: 1.000

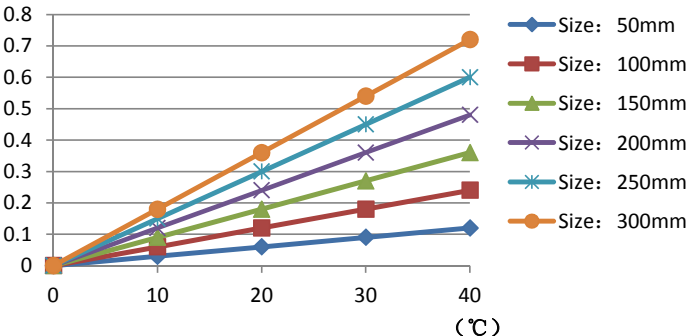
Optical Parameter(Distance=2.559m):

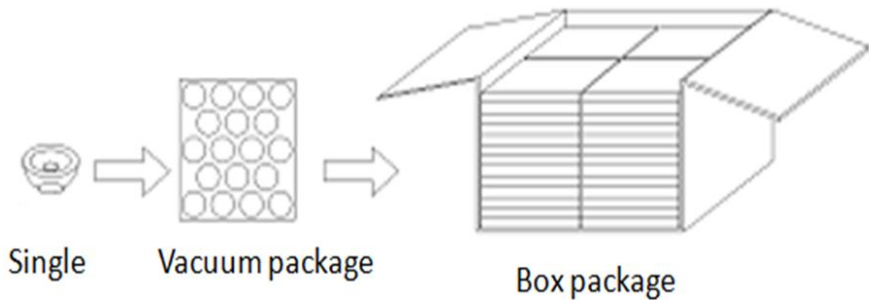
Equivalent Luminous flux: Φ_{eff} = 713.8lm Efficiency: Eff = 211.82lm/W
Diffuse angle: @ (25%): 70.4deg @ (50%): 60.2deg @ (75%): 50.8deg @ (50%): 60.2deg
Diffuse angle: @ (25%): 70.5deg @ (50%): 60.4deg @ (75%): 50.9deg @ (50%): 60.4deg
 I_{max} = 738.0cd (C=0.0deg, G=1.0deg) C0-180Plane I_{max} = 738.0cd (G=1.0deg)
C0-180Plane I_0 = 736.0cd

1.Size		Standard size	Upper Size limit	Lower size limit	Test result1	Test result2	Test result3	Test result4	Judgment	Remarks
	diameter	75			74.88	75.08				Test environment: In 20℃ -25℃ environment to achieve thermal equilibrium after the test.
	height	30.6			30.64	30.74				
	thickness	3			3.05	3.08				
	column diameter	3.5			3.5	3.48				
	Location column	39			38.9	39.04				
	Gate shear can not affect the appearance of the lamp									
See attachment "Appearance Inspection Standards"										
2.Appearance Quality		See attachment "Appearance Inspection Standards"	E	No burr	No burr	No burr	No burr	OK		
				No stains	No stains	No stains	No stains			
3.Material		PMMA				Color	Transparent		OK	
4.Optical index	Testing LED		D12							
	The recommended size and power rating of the LED light source recommended for this lens should be comparable to the source of the test, if it is required to be out of range. According to the heat dissipation capability of the lamp and the actual conditions of the use environment, the lens should be fully tested and tested to prevent the lens life.									
	FWHM		See light distribution curve							
	angle				14.7°	14.6°	14.7°			
	K-value				9.98	9.80	9.82			
	Efficiency				92.00%	91.25%	91.73%			
		Facula	See the signature sample							
Comprehensive judgment		Qualified								
Remarks: 1、 Tool Number: V-Vernier Caliper 2D-Quadratic H-Height Gauge M-Tool Microscope P-Needle T-Thick Gauge R-Radius Gauge E-Visual. 2、 Ambient temperature on the size of the product refer to the table on the right			PMMA product size changes with temperature table Length changes (mm)  Size: 50mm Size: 100mm Size: 150mm Size: 200mm 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.							

1.Size		Standard size	Upper Size limit	Lower size limit	Test result1	Test result2	Test result3	Test result4	Judgment	Remarks
	diameter	75			74.88	74.8	74.84			Test environment: In 20 °C -25 °C environment to achieve thermal equilibrium after the test.
	height	30.6			30.85	30.82	30.85			
	thickness	3			3.1	3.08	3.16			
	column diameter	3.5			3.54	3.56	3.54			
	Location column	39			34.77	34.82	34.79			
	Gate shear can not affect the appearance of the lamp									
See attachment "Appearance Inspection Standards"										
2.Appearance Quality		See attachment "Appearance Inspection Standards"	E	No burr	No burr	No burr	No burr	OK		
				No stains	No stains	No stains	No stains			
3.Material		PMMA				Color	Transparent		OK	
4.Optical index	Testing LED		D12							
	The recommended size and power rating of the LED light source recommended for this lens should be comparable to the source of the test, if it is required to be out of range. According to the heat dissipation capability of the lamp and the actual conditions of the use environment, the lens should be fully tested and tested to prevent the lens life.									
	FWHM		See light distribution curve							
	angle				22.4°	21.6°	21.9°			
	K-value				5.51	5.99	5.85			
	Efficiency				96.50%	95.00%	95.02%			
Facula		See the signature sample								
Comprehensive judgment		Qualified								
Remarks:		1、 Tool Number: V-Vernier Caliper 2D-Quadratic H-Height Gauge M-Tool Microscope P-Needle T-Thick Gauge R-Radius Gauge E-Visual. 2、 Ambient temperature on the size of the product refer to the table on the right								
		PMMA product size changes with temperature table Length changes (mm)  Size: 50mm Size: 100mm Size: 150mm Size: 200mm 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.										

		Standard size	Upper Size limit	Lower size limit	Test result1	Test result2	Test result3	Test result4	Judgment	Remarks	
1.Size	diameter	75			75.06	75.04	75.02			Test environment: In 20℃ -25℃ environment to achieve thermal equilibrium after the test.	
	height	30.6			31.04	31.05	30.96				
	thickness	3			3.19	3.18	3.18				
	column diameter	3.5			3.62	3.6	3.62				
	Location column	39			35.1	35.08	35.1				
	Gate shear can not affect the appearance of the lamp										
	See attachment "Appearance Inspection Standards"										
2.Appearance Quality		See attachment "Appearance Inspection Standards"	E	No burr	No burr	No burr	No burr	OK			
				No stains	No stains	No stains	No stains				
3.Material		PMMA				Color	Transparent		OK		
4.Optical index	Testing LED		D12								
	The recommended size and power rating of the LED light source recommended for this lens should be comparable to the source of the test, if it is required to be out of range. According to the heat dissipation capability of the lamp and the actual conditions of the use environment, the lens should be fully tested and tested to prevent the lens life.										
	FWHM		See light distribution curve								
	angle				38.1°	38.3°	38.4°				
	K-value				2.72	2.59	2.68				
	Efficiency				92.10%	92.45%	91.19%				
	Facula		See the signature sample								
Comprehensive judgment		Qualified									
Remarks: 1、 Tool Number: V-Vernier Caliper 2D-Quadratic H-Height Gauge M-Tool Microscope P-Needle T-Thick Gauge R-Radius Gauge E-Visual. 2、 Ambient temperature on the size of the product refer to the table on the right			PMMA product size changes with temperature table Length changes (mm)  Size: 50mm Size: 100mm Size: 150mm Size: 200mm 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.											

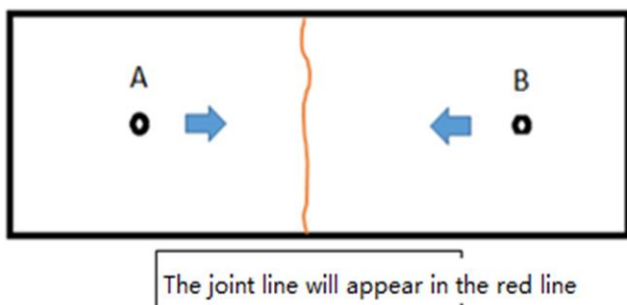
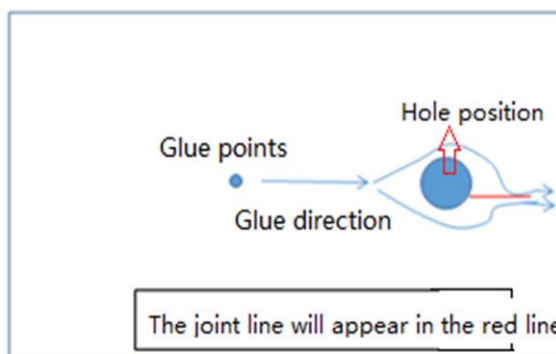
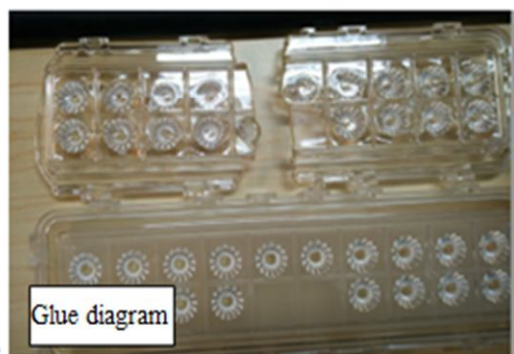
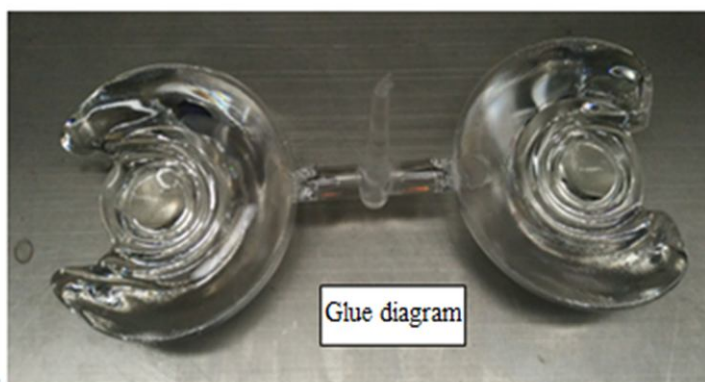
1.Size		Standard size	Upper Size limit	Lower size limit	Test result1	Test result2	Test result3	Test result4	Judgment	Remarks
	diameter	75			74.91	74.9	74.81	74.89		Test environment: In 20 °C -25 °C environment to achieve thermal equilibrium after the test.
	height	30.6			30.7	30.7	30.69	30.67		
	thickness	3			3.03	3.06	3.1	3.06		
	column diameter	3.5			3.4	3.41	3.4	3.4		
	Location column	39			38.99	39.01	38.91	38.98		
	Gate shear can not affect the appearance of the lamp									
See attachment "Appearance Inspection Standards"										
2.Appearance Quality		See attachment "Appearance Inspection Standards"	E	No burr	No burr	No burr	No burr	OK		
				No stains	No stains	No stains	No stains			
3.Material		PMMA				Color	Transparent		OK	
4.Optical index	Testing LED		D12							
	The recommended size and power rating of the LED light source recommended for this lens should be comparable to the source of the test, if it is required to be out of range. According to the heat dissipation capability of the lamp and the actual conditions of the use environment, the lens should be fully tested and tested to prevent the lens life.									
	FWHM		See light distribution curve							
	angle				60.8	60	60.9	60.2		
	K-value									
	Efficiency				90.66%	90.61%	90.50%	91.04%		
Facula		See the signature sample								
Comprehensive judgment		Qualified								
Remarks:		1、Tool Number: V-Vernier Caliper 2D-Quadratic H-Height Gauge M-Tool Microscope P-Needle T-Thick Gauge R-Radius Gauge E-Visual. 2、Ambient temperature on the size of the product refer to the table on the right PMMA product size changes with temperature table Length changes (mm)  Size: 50mm Size: 100mm Size: 150mm Size: 200mm 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.										

PN		HK-75@31-15-D12-20-1g-1		Product Name		HK-75@31-15°Lens	
Product material		PMMA		Customer			
Package diagram		 Single Vacuum package Box package					
Product packing		6	A/ Box	4	Box/Layer		
		9	Layer/Box	216	A/ Carton		
Packaging Materials	NO.	Part No	Part name	Size	Dosage	Unit	Remarks
	1	2.07.0068	Blister box	23cm*21cm	36	BAG	
	2	2.08.0001	PE film	30cm*30cm	36	PCS	
	3	2.06.0005	Reel label paper	6.2cm*8cm	36	PCS	
	4	2.06.0005	Box label paper	6.2cm*9.2cm	1	PCS	
	5	2.06.0003	big plate	46.8cm*42.8cm	10	PCS	
	6	2.06.0011	big carton	48cm*44cm*37cm	1	PCS	
Remarks	The loose packing is not subject to this specification. Customer's requirements shall prevail						

Special notice

When glue 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:

Synthesis



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

1.1.1 Sampling standards, sampling plan and AQL

Test level : GB/T2828.1-2012 The first part is according to the acceptance quality limit (AQL) retrieval batch inspection sampling plan, general inspection level II 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	H		Depth	mm
W	Width	mm	DS		Distance	mm
S	Proportion	mm ²	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		
		Testing method	MI	MA	CR
Check the sample	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.	Sample comparison , visual			√
	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;				

	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		√	
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		√	
Fingerprint	Fingerprints are not allowed on all products	Visual		√	
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				√
Deformation	Insufficient filling shall not affect the appearance of the assembly and the exposed surfaces.	Visual, feeler			√
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.	Visual, point card		√	
	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.				
Insufficient filling	Insufficient filling shall not affect the appearance of the assembly and the exposed surfaces , The signature sample shall prevail.	Visual, point card		√	
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		√	
Flow marks、Welding line	1 : Product does not allow the presence of flow marks and welding lines unless the structure can not be avoided;	Visual		√	
	2: The remaining flow marks shall not appear in the optical surface, a single $L \leq 10\text{mm}$, no more than two				

Bubble	No bubbles are allowed	Visual		√	
Foreign objects, black spots, white spots	Not obvious or $D \leq 0.3\text{mm}$ 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	√		
Damaged	No damage is allowed	Visual			√
Cold glue	Optical surface may not have cold glue, non-optical surface cold glue should meet the visual is not obvious.	Visual	√		
Bad incision	1: Do not affect the product size, shall not penetrate the optical surface, the cut should be smooth;	Visual			√
	2: Laser cutting products, the optical surface burns shall not occur after the processing is completed. Beading must not affect product installation				
	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 $D \leq 1\text{ mm}$ and no more than 1 area within a 50x50 mm area	Visual		√	