



**HERCULUX**  
恒坤光电

Chengdu HercuLux Photoelectric  
Technology Co.,Ltd  
**Product Approval**

Approval number: \_\_\_\_\_

Customer:

Product: HK Matrix 4-in-1 60X148 Degree Street Lamp Lens (T2) (PC)

Material Code: 1.02.23189\_PC

PN: HK-JZ-50@10-60X148-5050-#0-1g-4\_PC

Manufacturer: Chengdu HercuLux Photoelectric Technology Co.,Ltd



Supplier confirmation				Client confirmation			
Proposed		DATE		Qualified <input type="checkbox"/>		DATE	
Project manager		DATE		Unqualified <input type="checkbox"/>		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, lot industrial park 2 road HercuLux Photoelectric Park

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

Fax: 028-85887730

<http://www.herculux.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.

Please use this product within the permitted range and environment according to the structure and material of the product. If the usage exceeds the recommended value, please test and verify by yourself. If the product is damaged due to out-of-range use, our company will not be responsible for the warranty.

#### Product material:

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Conventional products: As a product that we continuously research and improve, under the premise of ensuring the quality and availability of the product, our company reserves the right to change the material. If the material specification and model change, without prior notice.

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The measurement data and dimensional tolerances of the 2D drawings in the product data sheet of this acknowledgement are for reference only, and the final size shall prevail in kind.

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#### Product changes and improvements:

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#### Operation cautions:

1. Please wear clean gloves during product assembly to prevent product surface contamination.
2. Try to avoid touching the optical surface of the lens when taking the lens.
3. When the surface of the product is polluted, please wipe it gently with a soft cotton cloth dipped in analytically pure neutral solvent. It is forbidden to use industrial solvents (alcohol, isopropanol, acetone, ether, toluene, xylene, carbon tetrachloride, MMA monomer, etc.) wipe.
4. The lens made of PC should not be exposed to direct sunlight in the storage and use environment. If the lens turns yellow or cracks due to long-term sunlight exposure, our company will not be responsible for the warranty.



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# Basic product information

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Date updated: 2023/6/14

Product Picture:



Size(L\*W\*H/Φ\*H):

L:50mm\*W:50mm\*H:7.6mm

Material:

PC

Efficiency:

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Temperature(Topr):

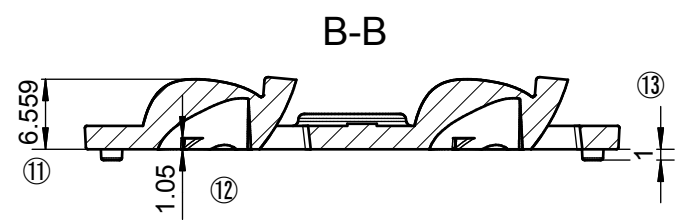
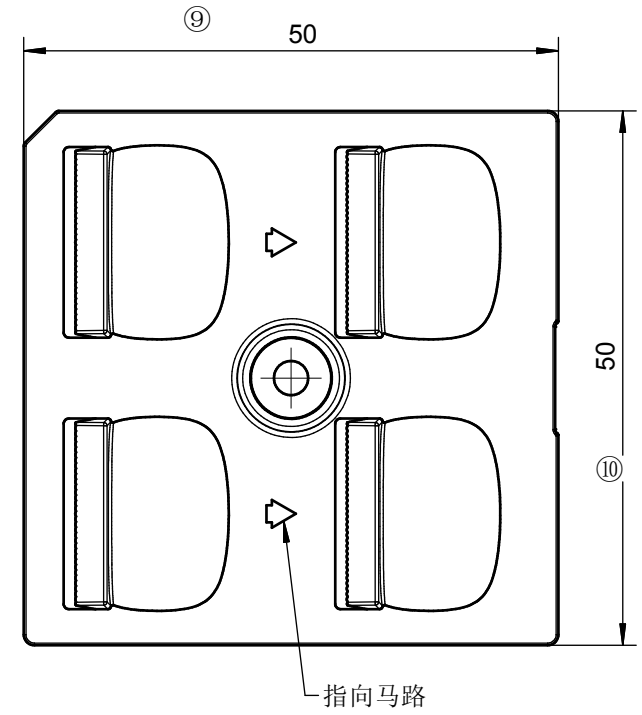
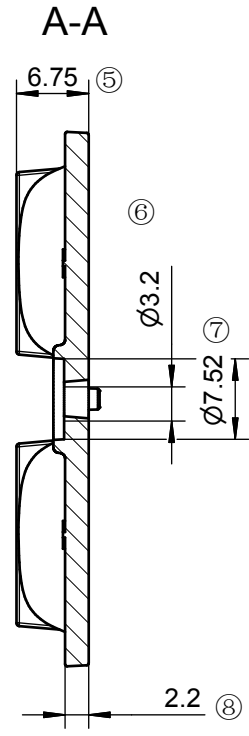
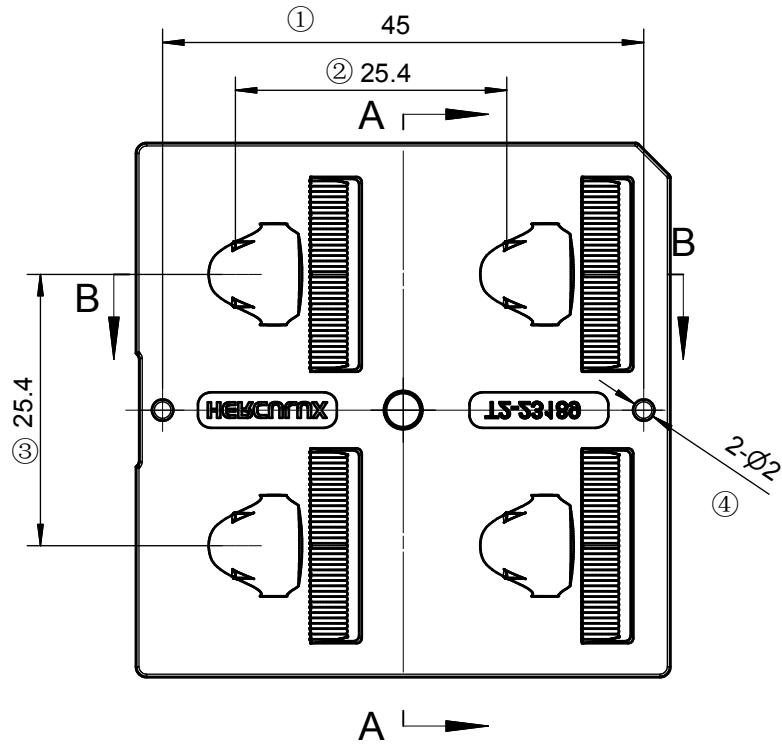
Material extreme temperature resistance: -40°C to +120°C  
long-term use temperature: -40°C to +100°C

FWHM:

60°X148°

Matched LES:

LUXEON 5050



技术要求:  
 1、未注圆角及拔模斜度按3D图。  
 2、未注尺寸公差按右表。  
 3、表面无飞边, 缩水, 气泡等缺陷。  
 \*4、灯具采用胶圈防水时: 要求散热器与胶圈的接触面的粗糙度: Ra<3.2μm

Technical remark:  
 1.Fillet and inclination not indicated according to 3D drawing.  
 2. Dimensional tolerances not indicated are shown in the right list.  
 3. The surface has no flash, shrinkage, bubbles and other defects.  
 \*4. When the lamp adopts rubber ring for waterproofing: the roughness of the contact surface between the radiator and the rubber ring is required: Ra<3.2μm

基本尺寸	公差值
Basic size	Tolerance value
<3	±0.1
3~10	±0.15
10~24	±0.20
24~65	±0.35
65~140	±0.50
140~250	±0.80
250~450	±1.2
>450	±2.0

出光角度范围 Beam angle range		透过率 Transmittance							
最小K值 Min K value		点胶类型 Gel type							
模具等级 Mold level	见图面	备注 Remark							
2		4							
1		3							
序号 Item	更改标记 Change mark	更改内容 Change content	更改日期 Change date	签名 Signature	序号 Item	更改标记 Change mark	更改内容 Change content	更改日期 Change date	签名 Signature
光学设计 Optical design					Title: HK-矩阵4合1 60X148度 路灯透镜 (T2) (PC)				
结构设计 Structural design					Drawing No. HK-JZ-50@10-60X148-5050-#0-1g-4_PC				
审核 Verify					Part No. 1.02.23189_PC				
审定 Approval					材料 Material:	PC	CDHK		

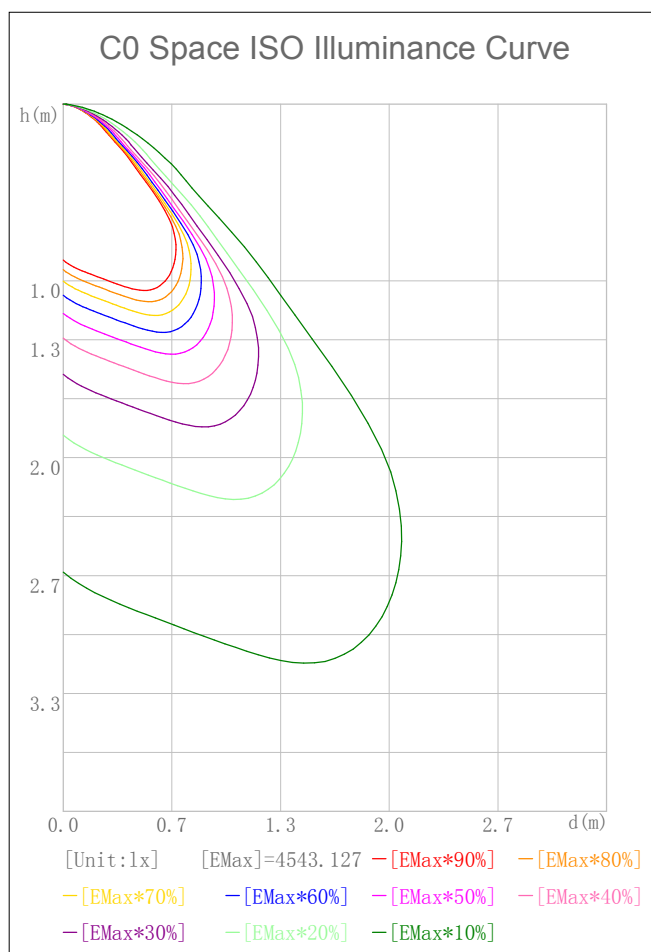
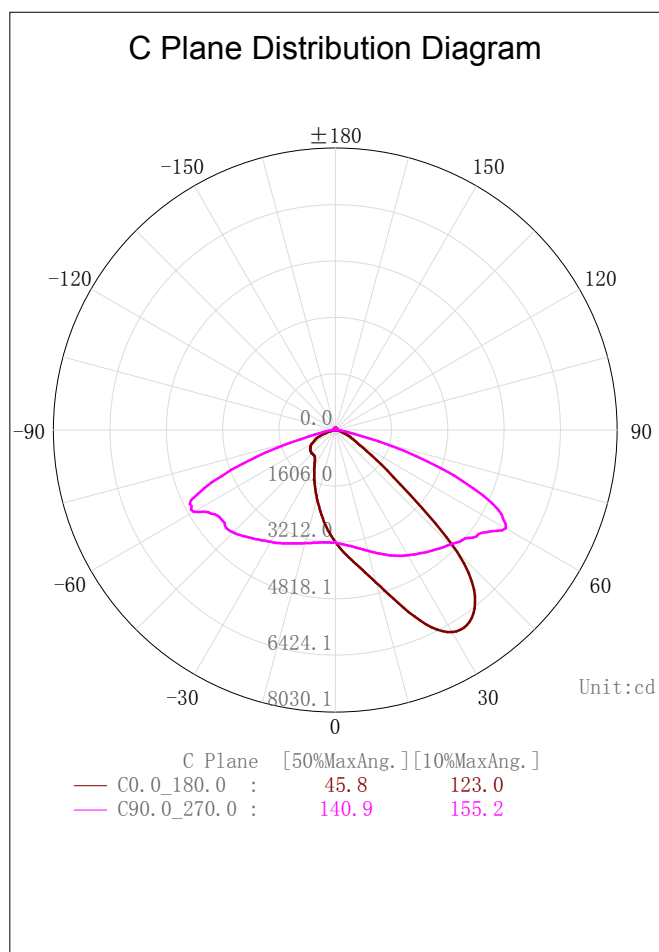
**Road Luminaire Photometric Data**

**Description Information**

Luminary Name:	Lum. Catalog:	Test ID:
Lamp Name:	Lamp Catalog:	Test Date: 2023/06/14
Manufacture:	Shld. Ang(°):	Test Machine:GON-2000
Test Lab:	Frequency(Hz):	Lamp CCT(K): Ra:
Lum. Size(W*L*H):0.000m*0.000m*0.000m	Lum. Area(m2):0.000	Lum. W(kg): 0.000
Test System: C, γ	Test Step: C=15.0 γ=1.0	Temp.(°C): 25
		Humidity(%): 50.0

**Character Parameter**

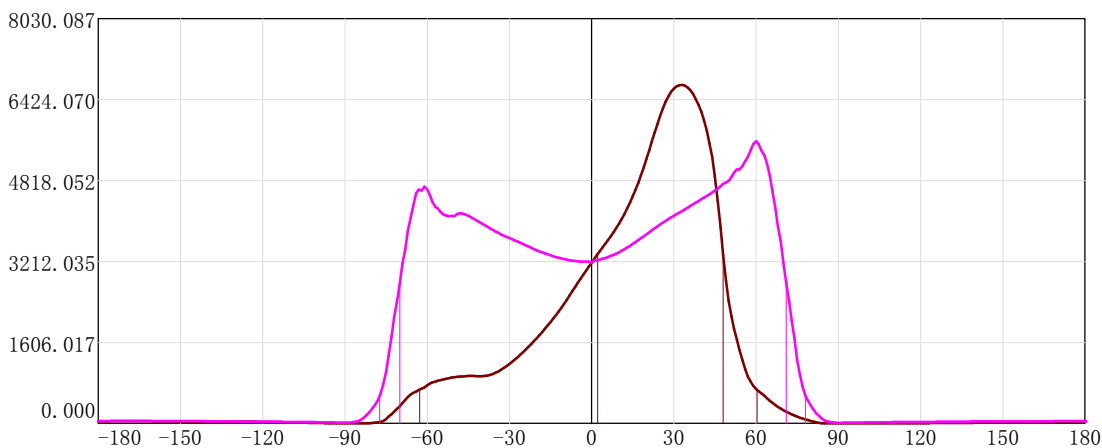
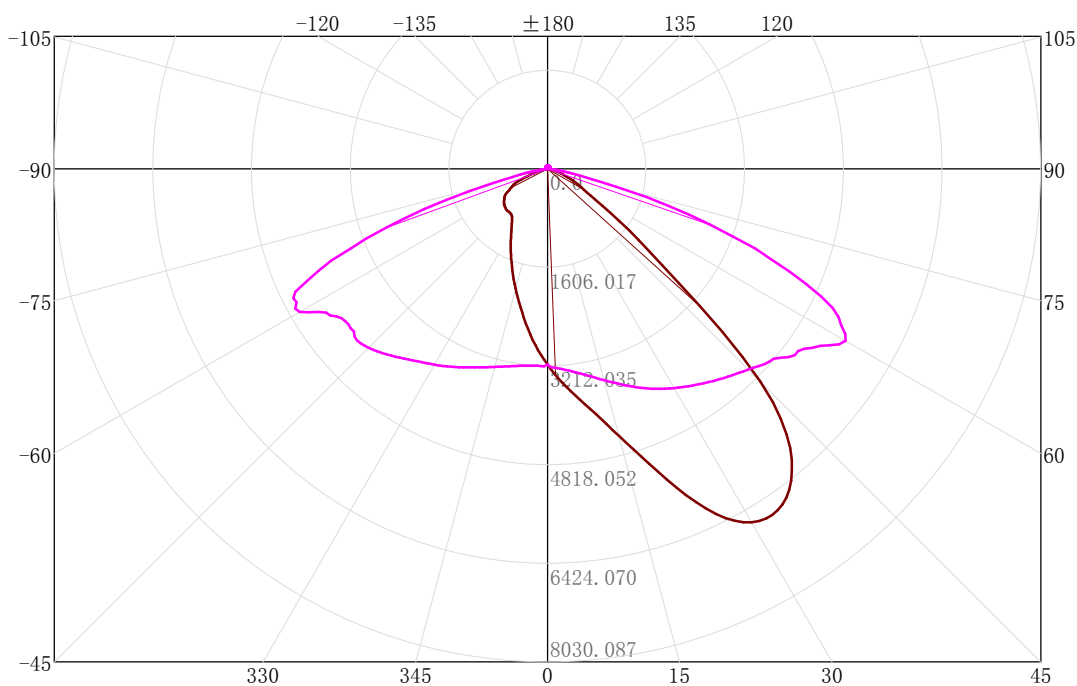
Lamp Speciality Parameter		Luminaire Speciality Parameter	
Rated Flux(lm): 1000.000	Luminary Flux(lm): 14370.855	Down Lumens&Percent: 14207.030lm 98.86%	
Rated Power(W):	Luminary Efficiency: 1437.09%	Up Lumens&Percent: 163.825lm 1.14%	
Rated Voltage(V):	Luminary EER(lm/W): 121.581	76° Flash Area(m2):	
Tested Power(W): 118.200	Max. Candela(cd): 8030.087	SLI: 0.000	
Lamps' Inside: 1	Max Cand@Ang.(°): C=75.0 γ=60.0	IES Classification: Type III	
Tested Electrics(V, A, pf):225.9, 0.530, 1.000	Half Peak Angle(°): L=19.7, R=69.9	Longitudinal Classfct: Very Short	
Lamp Size(W*L*H):0.000m*0.000m*0.000m	Field Angle(10%Imax): 151.2(°)	Cutoff Classification: Cutoff	



**2D Plane Light Intensity Distribution Curve**

Lum. Name:	Lum. Catalog:	Test ID:
Lamp Name:	Lamp Catalog:	Test Lab:
Manufacture:	Test Machine:GON-2000	Test Date: 2023/06/14

**C Plane Distribution Diagram**



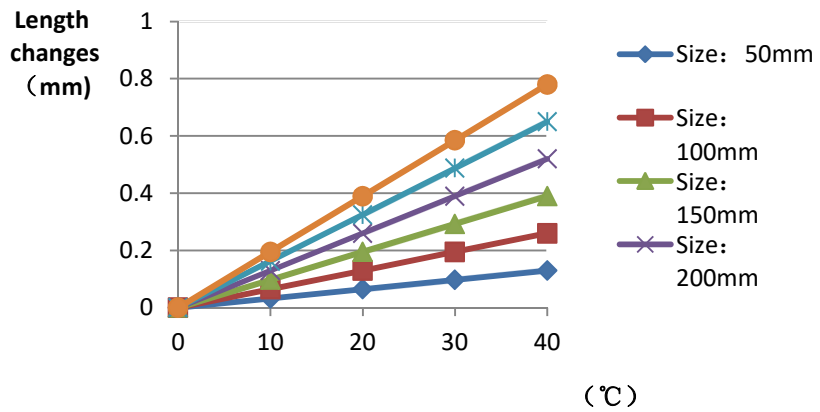
—	C Plane	[50%MaxAng.]	[10%MaxAng.]	Unit:cd
—	C0.0_180.0 :	45.8	123.0	
—	C90.0_270.0 :	140.9	155.2	

		Standard size	Upper Size limit	Lower size limit	Test resu lt1	Test resu lt2	Test resu lt3	Test resu lt4	Test resu lt5	Test resu lt6	Test resu lt7	Test resu lt8	Jud gme nt	Remarks
1.Size	OW	50			50	50	50	50	50	50	50	50		Test environment: In 20 °C -25 °C environment to achieve thermal equilibrium after the test.
	S of locating	45			45	45	45	45	45	45	45	45		
	D of locating	2			2	2.1	2	2	2.1	2	2.1	2.1		
	TH	2.2			2.2	2.3	2.2	2.2	2.3	2.3	2.2	2.2		
	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		No burr		OK	
			No stains		No stains		No stains		No stains					
3.Material	PC				Color		Transparent				OK			
4.Optical index	Testing LED	LUXEON 5050												
	The size and rated power of the light-emitting surface (LES) of the COB recommended by this lens should conform to the parameters in the product basic information table. 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													
	Efficiency													
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

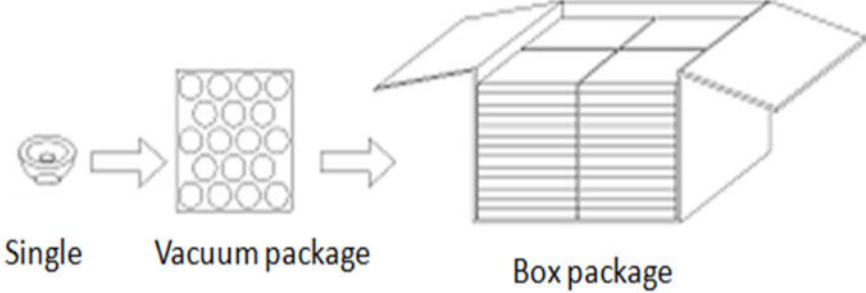
PC product size changes with temperature table



Precautions:

1. Please wear clean gloves during the lens assembly process to prevent the lens surface from being contaminated.
2. Try to avoid touching the total reflection surface when taking the lens.
3. The lens surface is contaminated. Only use a soft cotton cloth dipped in analytically pure neutral solvent to wipe gently. Do not wipe with industrial solvents (alcohol, isopropanol, acetone, ether, toluene, xylene, carbon tetrachloride, MMA Body, etc.).
4. The working temperature of the lens should be within the temperature resistance limit of the lens material. Exceeding the temperature resistance limit will cause the lens to crack or melt and affect the service life of the lens. It is recommended that the upper surface temperature of the LED colloid should be less than 120 degrees.

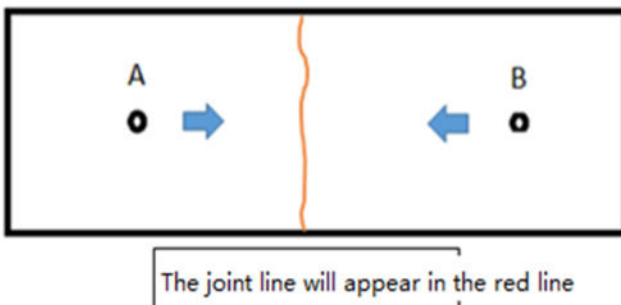
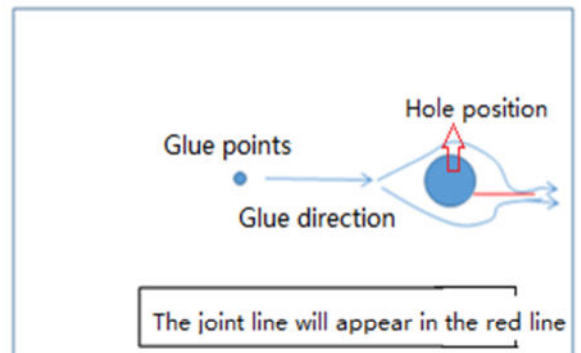
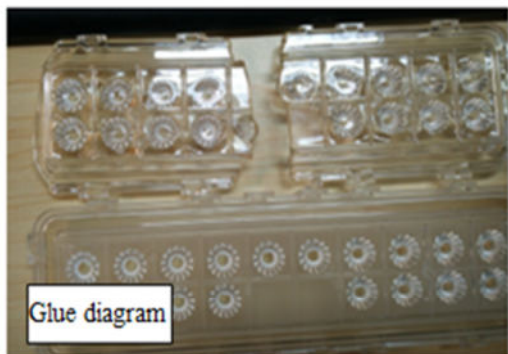
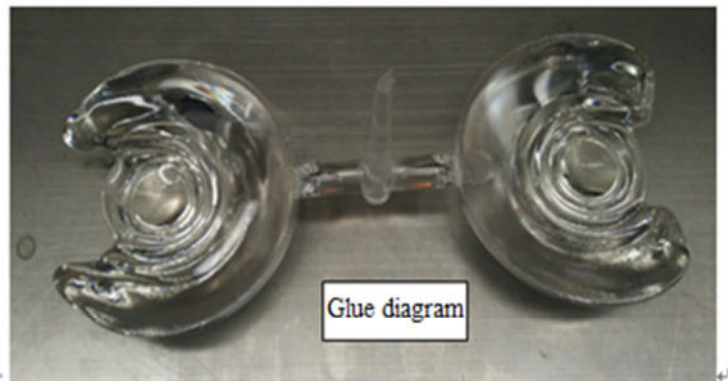
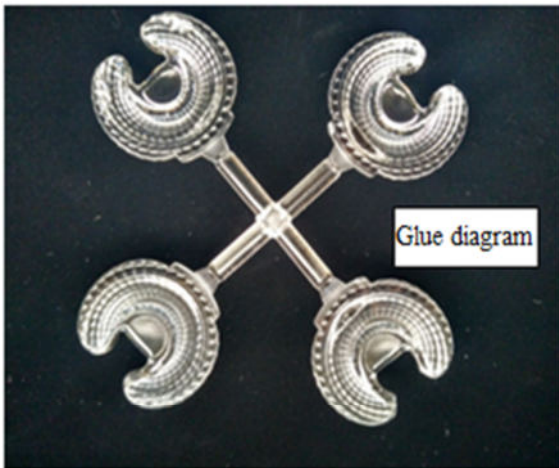


PN		HK-JZ-50@10-60X148-5050-#0-1g-4_PC	Product Name	HK Matrix 4-in-1 60X148 Degree Street Lamp Lens (T2) (PC)			
Product material		PC					
Package diagram		 <p>Single → Vacuum package → Box package</p>					
Product packing		24	A/ Box	4	PCS/Layer		
		14	Layer/Box	1344	A/ Carton		
Packaging Materials	NO.	Part No	Part name	Size	Dosage	Unit	Remarks
	1	2.07.0049	Blister box	23cm*21cm	56	BAG	
	2	2.08.0001	PE film	30cm*30cm	56	PCS	
	3	2.06.0005	Reel label paper	6.2cm*8cm	56	PCS	
	4	2.06.0005	Box label paper	6.2cm*9.2cm	1	PCS	
	5	2.06.0003	big plate	46.8cm*42.8cm	15	PCS	
	6	2.06.0001	big carton	46.8cm*42.8cm*36cm	1	PCS	
Remarks	The loose packing is not subject to this specification. Customer's requirements shall prevail(There are three layers of 24 bags for each layer and 5 bags for the top layer)						

## 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 <sup>2</sup>	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		√	

Approval number:

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Manufacturer: Chengdu HercuLux Photoelectric Technology Co.,Ltd

PN	Code	Product
HK-JZ-50@10-60X148-5050-#0-1g-4_PMMA	1.02.23189_PMMA	HK Matrix 4-in-1 60X148 Degree Street Lamp Lens (T2) (PMMA)



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Date updated: 2023/6/14

Product Picture:



Size(L\*W\*H/Φ\*H):

L:50mm\*W:50mm\*H:7.6mm

Material:

PMMA

Efficiency:

\

Temperature(Topr):

Material extreme temperature resistance: -40°C to +100°C  
long-term use temperature: -40°C to +80°C

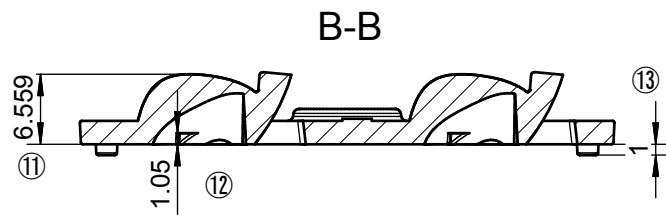
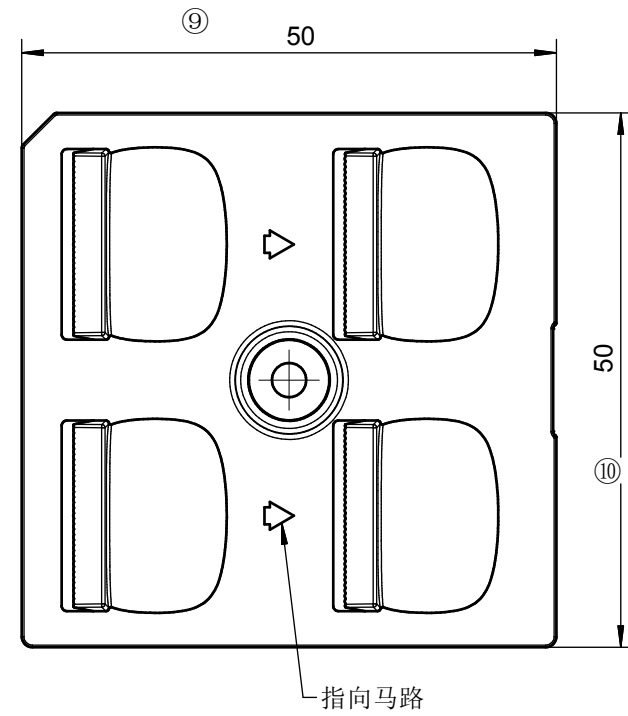
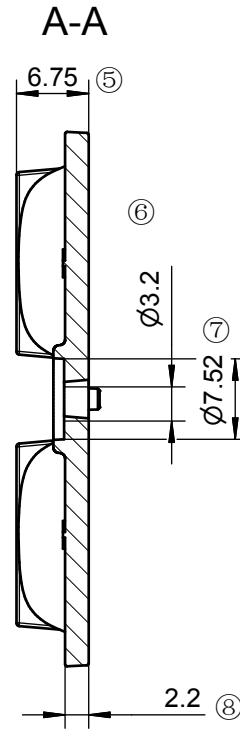
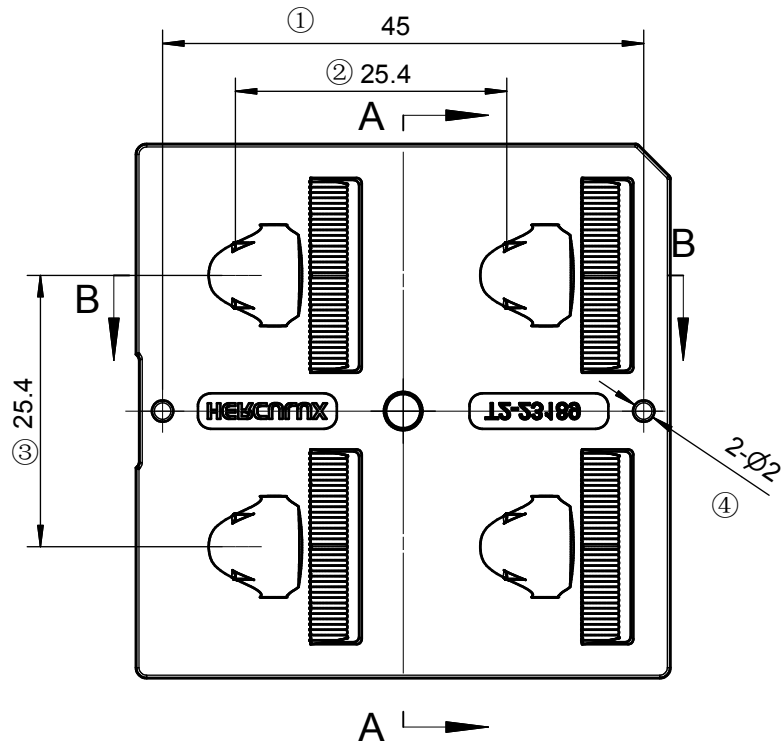
FWHM:

60°X148°

Matched LES:

LUXEON 5050





技术要求:  
 1、未注圆角及拔模斜度按3D图。  
 2、未注尺寸公差按右表。  
 3、表面无飞边, 缩水, 气泡等缺陷。  
 \*4、灯具采用胶圈防水时: 要求散热器与胶圈的接触面的粗糙度: Ra<3.2μm

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基本尺寸	公差值
Basic size	Tolerance value
<3	±0.1
3~10	±0.15
10~24	±0.20
24~65	±0.35
65~140	±0.50
140~250	±0.80
250~450	±1.2
>450	±2.0

序号	更改标记	更改内容	更改日期	签名	序号	更改标记	更改内容	更改日期	签名
Item	Change mark	Change content	Change date	Signature	Item	Change mark	Change content	Change date	Signature
2					4				
1					3				
光学设计 Optical design					Title:				
结构设计 Structural design					HK-矩阵4合1 60X148度路 灯透镜 (T2) (PMMA)				
审核 Verify					Drawing No.				
审定 Approval					HK-JZ-50@10-60X148-5050-#0-1g-4_PMMA				
材料 Material:					1.02.23189_PMMA				
PMMA					CDHK				

出光角度范围 Beam angle range	透过率 Transmittance
最小K值 Min K value	点胶类型 Gel type
模具等级 Mold level	备注 Remark

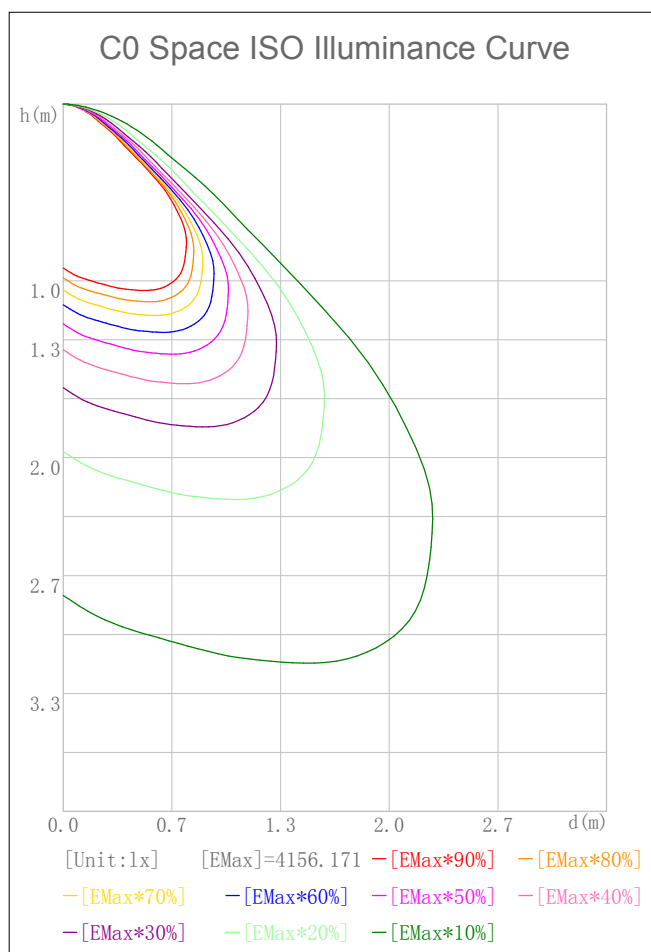
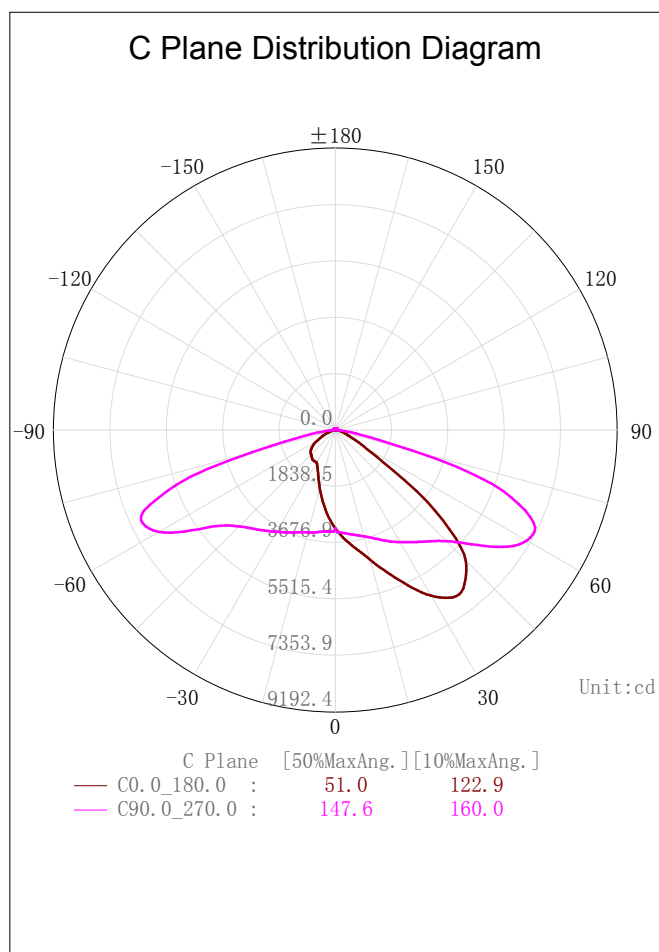
**Road Luminaire Photometric Data**

**Description Information**

Luminary Name:	Lum. Catalog:	Test ID:
Lamp Name:	Lamp Catalog:	Test Date: 2022/05/21
Manufacture:	Shld. Ang(°):	Test Machine:GON-2000
Test Lab:	Frequency(Hz):	Lamp CCT(K): Ra:
Lum. Size(W*L*H):0.000m*0.000m*0.000m	Lum. Area(m2):0.000	Lum. W(kg): 0.000
Test System: C, $\gamma$	Test Step: C=10.0 $\gamma$ =1.0	Temp. (°C): 25
		Humidity(%): 50.0

**Character Parameter**

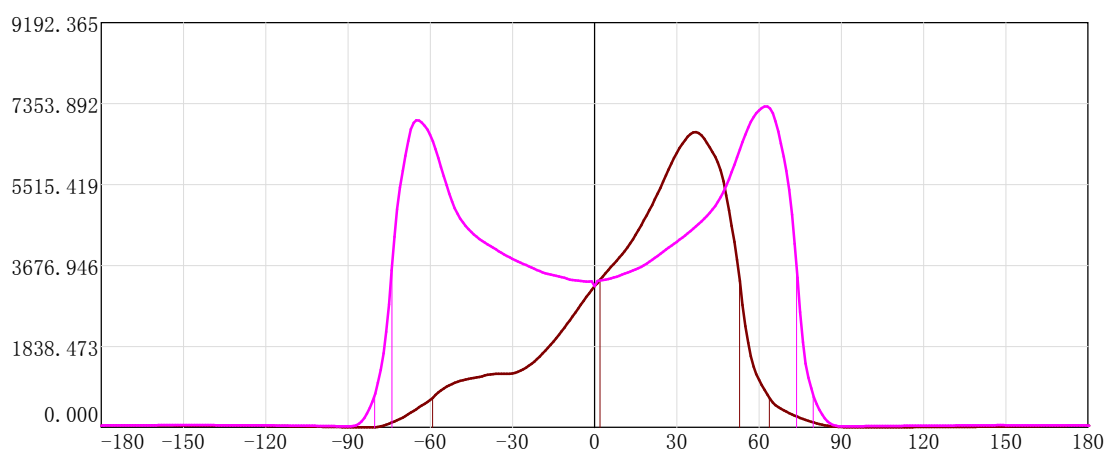
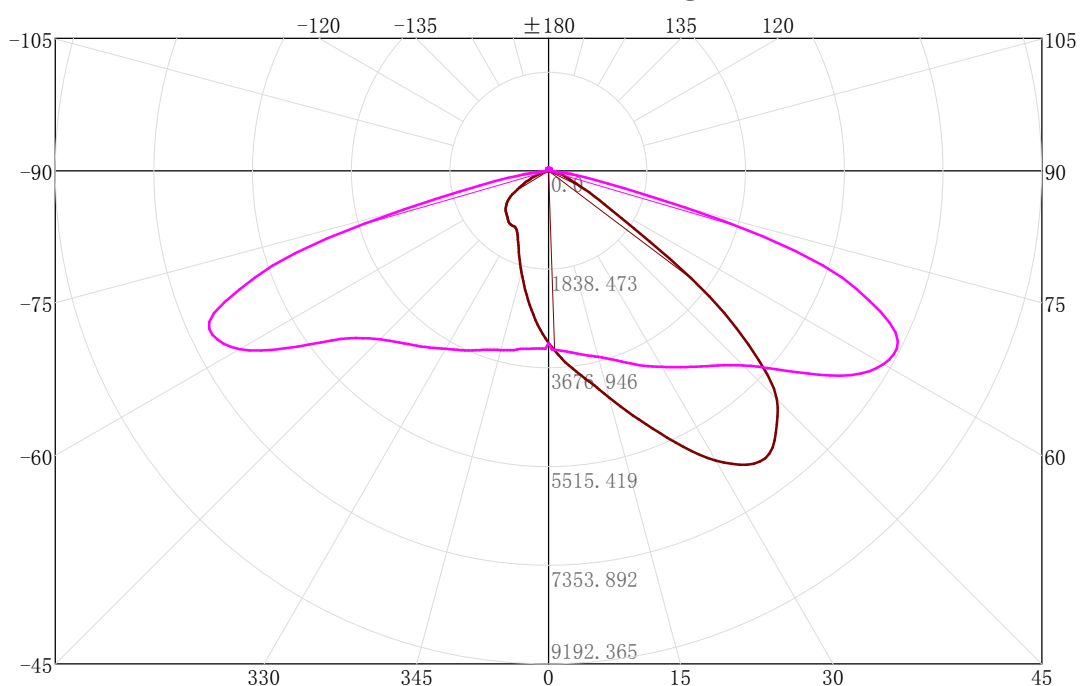
Lamp Speciality Parameter		Luminaire Speciality Parameter	
Rated Flux(lm): 16538.180	Luminary Flux(lm): 16538.182	Down Lumens&Percent: 16336.409lm 98.78%	
Rated Power(W):	Luminary Efficiency: 100.00%	Up Lumens&Percent: 201.773lm 1.22%	
Rated Voltage(V):	Luminary EER(lm/W): 130.944	76° Flash Area(m2):	
Tested Power(W): 126.300	Max. Candela(cd): 9192.365	SLI: 0.000	
Lamps' Inside: 1	Max Cand@Ang. (°): C=70.0 $\gamma$ =63.0	IES Classification: Type IV	
Tested Electrics(V, A, pf):224.7, 0.568, 0.990	Half Peak Angle(°): L=27.3, R=72.8	Longitudinal Classfct: Very Short	
Lamp Size(W*L*H):0.000m*0.000m*0.000m	Field Angle(10%Imax): 151.9(°)	Cutoff Classification: Cutoff	



### 2D Plane Light Intensity Distribution Curve

Lum. Name:	Lum. Catalog:	Test ID:
Lamp Name:	Lamp Catalog:	Test Lab:
Manufacture:	Test Machine:GON-2000	Test Date: 2022/05/21

**C Plane Distribution Diagram**

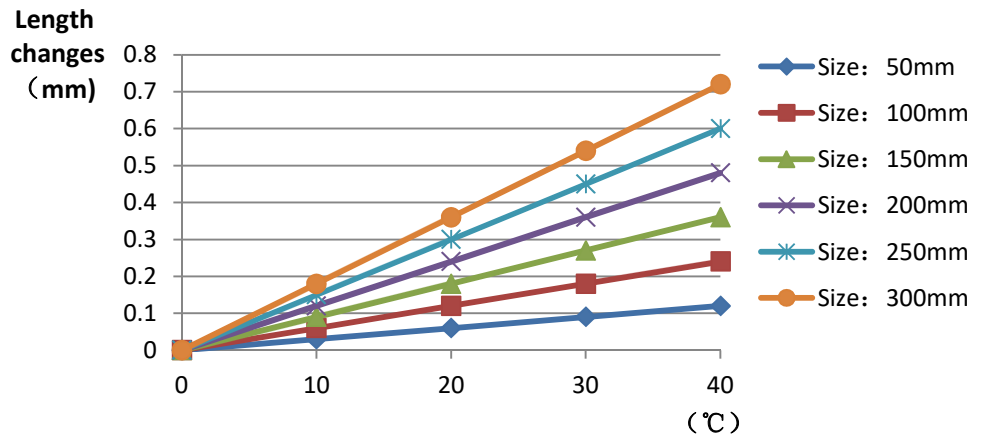


—	C Plane	[50%MaxAng.]	[10%MaxAng.]	Unit:cd
—	C0.0_180.0 :	51.0	122.9	
—	C90.0_270.0 :	147.6	160.0	

		Standard size	Upper Size limit	Lower size limit	Test result 1	Test result 2	Test result 3	Test result 4	Test result 5	Test result 6	Test result 7	Test result 8	Judgment	Remarks
1.Size	OW	50			49.96	49.96	50.08	50	49.99	49.98	49.99	50.02		Test environment : In 20 °C - 25 °C environment to achieve thermal equilibrium after the test.
	S of locating	45			45.01	45.01	45	45	45.01	45.01	45.01	45.01		
	D of locating	2			2.04	2.05	2.04	2.04	2.05	2.03	2.05	2.05		
	TH	2.2			2.23	2.27	2.24	2.24	2.25	2.25	2.21	2.24		
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		No burr		OK	
			No stains		No stains		No stains		No stains					
3.Material	PMMA				Color		Transparent				OK			
4.Optical index	Testing LED	LUXEON 5050												
	The size and rated power of the light-emitting surface (LES) of the COB recommended by this lens should conform to the parameters in the product basic information table. 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													
	Efficiency													
Facula	See the signature sample													
Comprehensive judgment	Qualified													

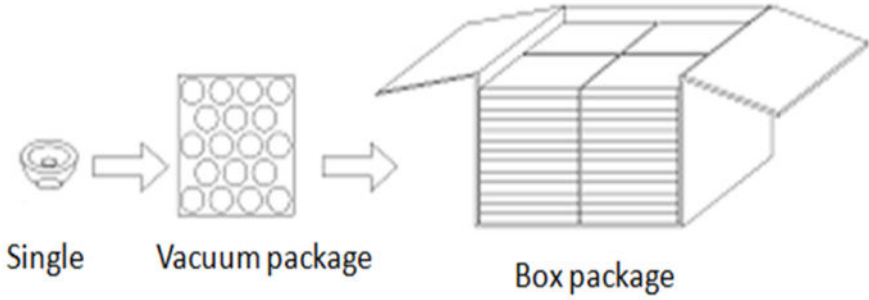
Remarks:  
 1、 Tool Number: V-  
 Vernier Caliper 2D-  
 Quadratic H-Height  
 Gauge M-Tool  
 Microscope P-Needle  
 T-Thick Gauge R-  
 Radius Gauge E-  
 Visual.  
 2、 Ambient  
 temperature on the size  
 of the product refer to  
 the table on the right

PMMA product size changes with temperature table



Precautions:

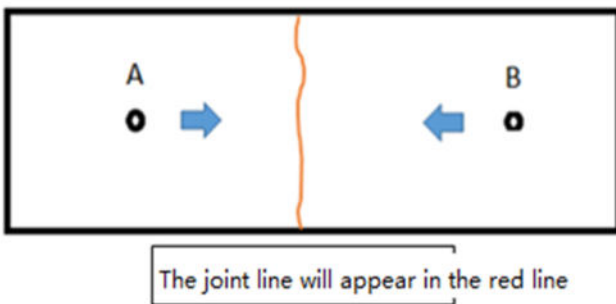
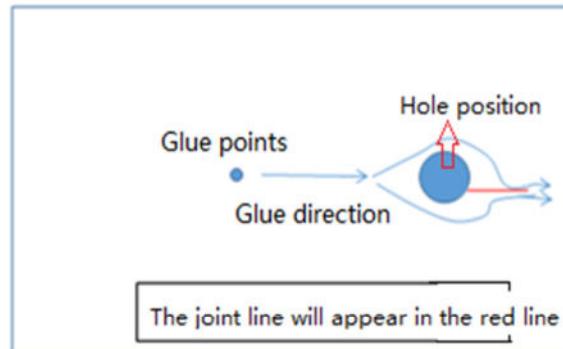
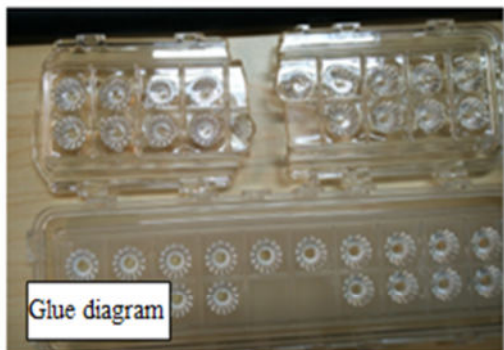
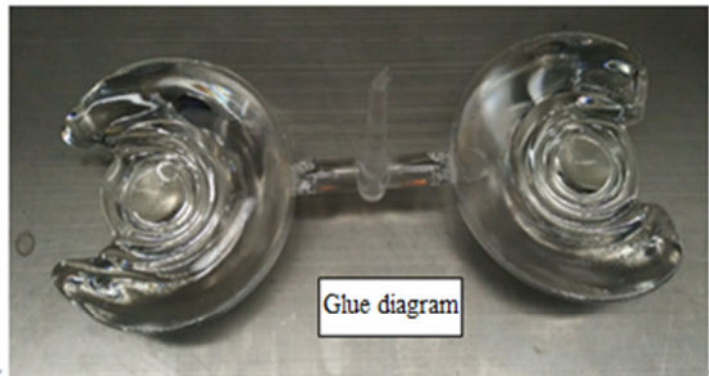
1. Please wear clean gloves during the lens assembly process to prevent the lens surface from being contaminated.
2. Try to avoid touching the total reflection surface when taking the lens.
3. The lens surface is contaminated. Only use a soft cotton cloth dipped in analytically pure neutral solvent to wipe gently. Do not wipe with industrial solvents (alcohol, isopropanol, acetone, ether, toluene, xylene, carbon tetrachloride, MMA Body, etc.).
4. The working temperature of the lens should be within the temperature resistance limit of the lens material. Exceeding the temperature resistance limit will cause the lens to crack or melt and affect the service life of the lens. It is recommended that the upper surface temperature of the LED colloid should be less than 120 degrees.

PN		HK-JZ-50@10-60X148-5050-#0-1g-4_PMMA		Product Name		HK Matrix 4-in-1 60X148 Degree Street Lamp Lens (T2) (PMMA)	
Product material		PMMA					
Package diagram		 <p style="text-align: center;">Single      Vacuum package      Box package</p>					
Product packing		24	A/ Box	4	PCS/Layer		
		14	Layer/Box	1344	A/ Carton		
Packaging Materials	NO.	Part No	Part name	Size	Dosage	Unit	Remarks
	1	2.07.0049	Blister box	23cm*21cm	56	BAG	
	2	2.08.0001	PE film	30cm*30cm	56	PCS	
	3	2.06.0005	Reel label paper	6.2cm*8cm	56	PCS	
	4	2.06.0005	Box label paper	6.2cm*9.2cm	1	PCS	
	5	2.06.0003	big plate	46.8cm*42.8cm	15	PCS	
	6	2.06.0001	big carton	46.8cm*42.8cm*36cm	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:

synneuu



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 <sup>2</sup>	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		√	