



**HERCULUX** Chengdu HercuLux Photoelectric  
 恒坤光电 Technology Co.,Ltd  
**Product Approval**

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

Customer :

Product : HK 6 in 1-Type i street lamp lens

Material Code : 1.02.12705

PN : HK-50@09-75X140-5050-#0-1g-6

Synthetic information:1.07.81402\_HK-257@02-0221-S

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"/>			
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

<http://www.herculux.cn/>

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.



**HERCULUX**  
恒坤光电


# Product Approval

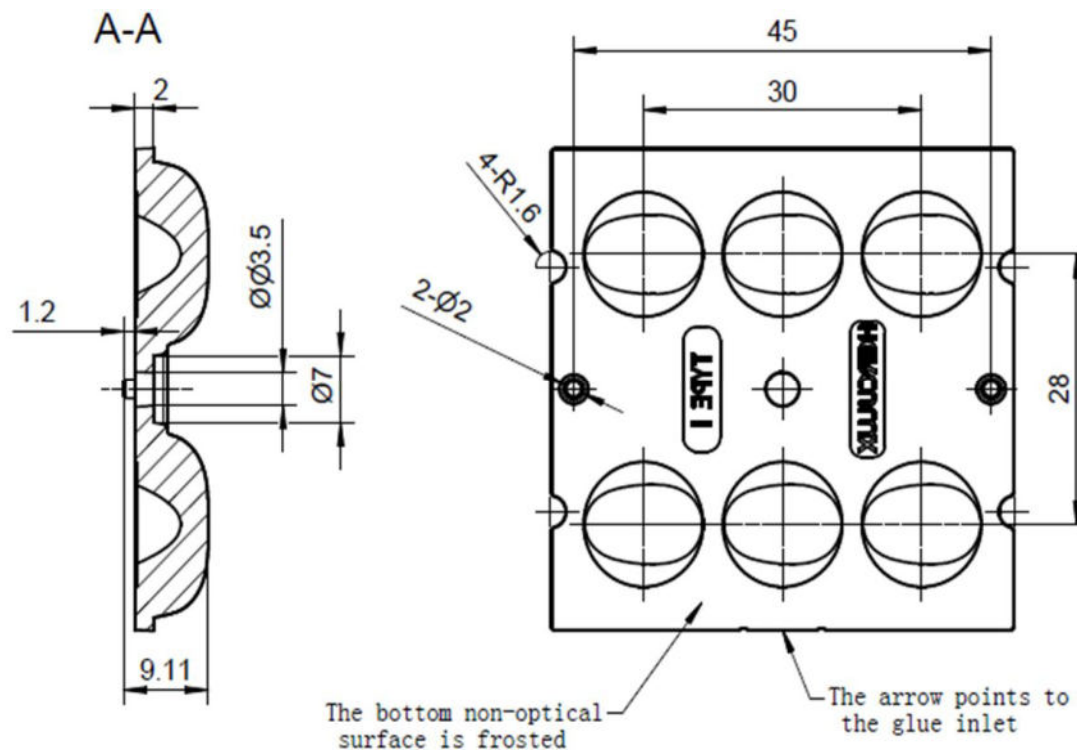
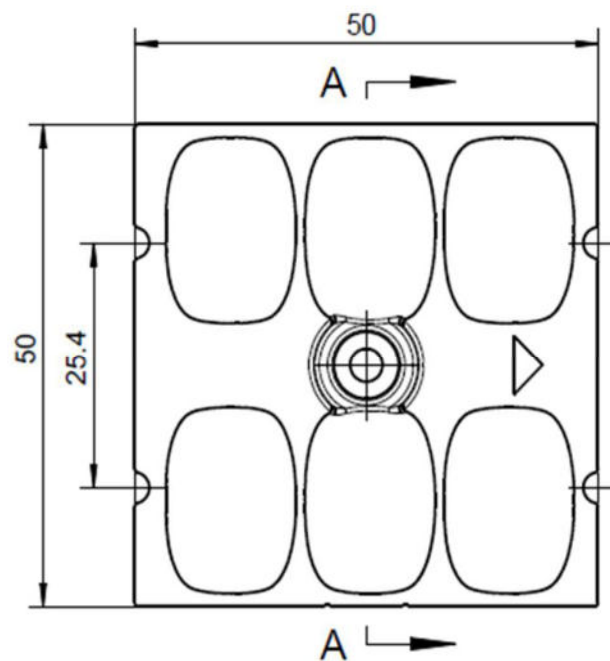
TEL: 0755-2937 1541

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<http://www.herculux.cn/>

Date updated: 2021/11/2

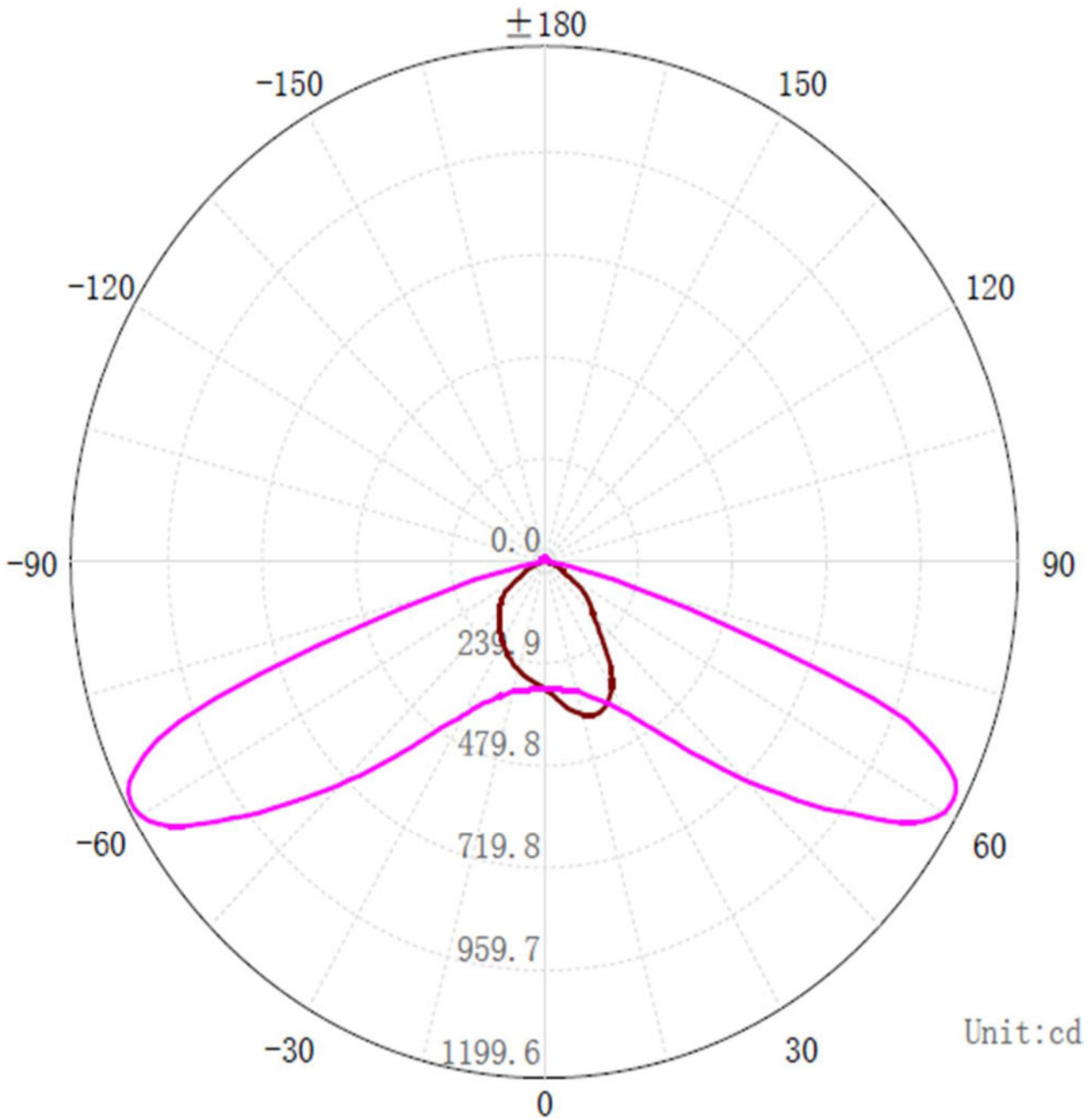
Product Picture:	
PN:	HK-50@09-75X140-5050-#0-1g-6
Size(L*W*H/Φ*H):	L:50mm*W:50mm*H:09mm
Material:	PC
Efficiency:	≥88%
Temperature(Topr):	Material limit temperature resistance: -40°C to +120°C Long-term use temperature: -40°C to +90°C
FWHM:	75°X140°
Matched LES:	5050



Technical Requirement:

1. The surface don't have any defects of flash, shrink and bubble.
2. The uncharted fillet and pattern draft subject to the 3D drawing.
3. The uncharted dimensional tolerance subject to the 3D drawing.

Optical Design			HK-50@09-75X140-5050-#0-1g-6	1.02.12705
Structure Design		HK 6 in 1-Type i street lamp lens	Pages	Qty
Assess			2	
Authorized		Material:PC		CDHK



C Plane	[50%MaxAng.]	[10%MaxAng.]
— C0.0_180.0 :	80.2	134.8
— C90.0_270.0 :	142.2	154.7

		Standard size	Upper Size limit	Lower size limit	Test result1	Test result2	Test result3	Test result4	Test result5	Test result6	Test result7	Test result8	Judgment	Remarks
1.Size	width	50	50.15	49.7	49.97	49.95	49.96	49.93	49.97	49.95	49.98	49.98	OK	Test environment: In 20 °C -25 °C environment to achieve thermal equilibrium after the test.
	The thickness of	2	2.1	1.9	2.05	2.04	2.08	2.06	2.06	2.05	2.03	2	OK	
	The aperture	3.5	3.65	3.3	3.5	3.56	3.5	3.48	3.5	3.52	3.54	3.48	OK	
	Position column	1.2	1.3	0.9	1.06	1.12	1.1	1.13	1.04	1.03	1.15	1.12	OK	
	position column diameter	2	2.1	1.9	2.04	2.04	2.03	2.04	2.02	2.03	2.03	2.03	OK	
	position column spacing	45	45.15	44.85	49.95	49.94	49.97	49.94	49.98	49.96	49.96	49.96	OK	
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	PC	Color	Transparent	OK
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4.Optical index	Testing LED	5050						
	FWHM	See light distribution curve						
	Angle	/						OK
	Efficiency	/						OK
Facula	See the signature sample							

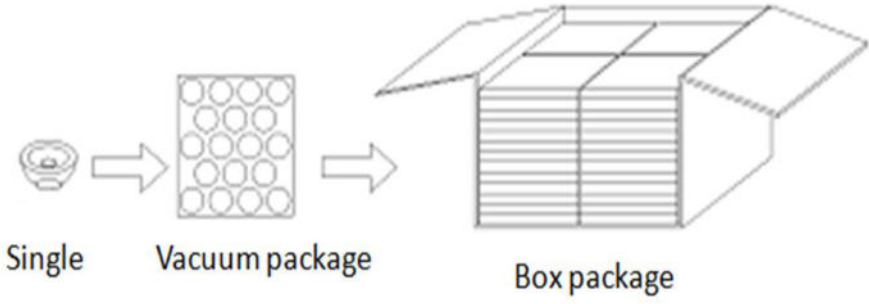
Comprehensive judgment	Qualified
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Remarks:  
 1、 Tool Number: V-Vernier Caliper 2D-Quadratic H-Height Gauge M-Tool Microscope P-Needle T-Thick Gauge R-Radius Gauge E-Visual.  
 2、 Ambient temperature on the size of the product refer to the table on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

**PC product size changes with temperature table**

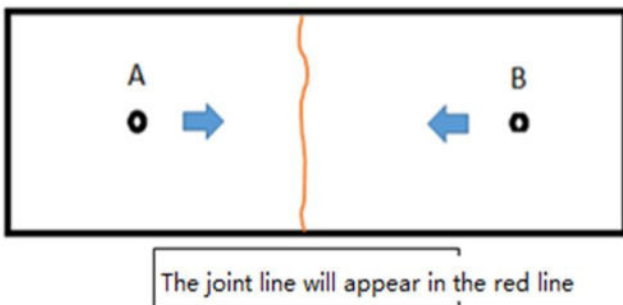
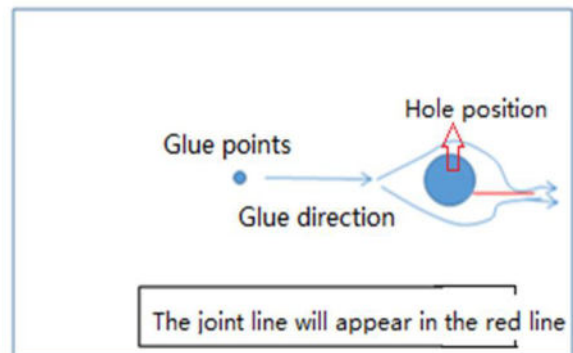
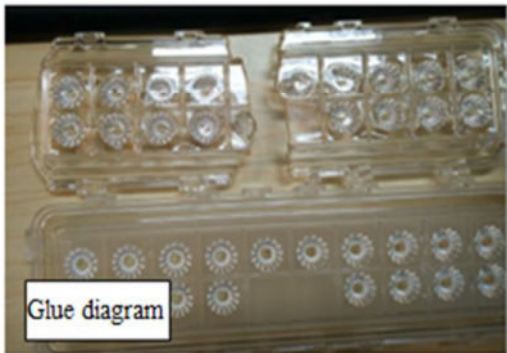
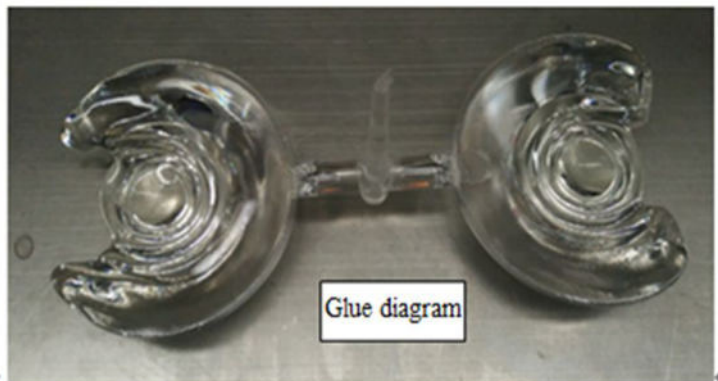
Temperature (°C)	50mm	100mm	150mm	200mm	250mm	300mm
0	0.00	0.00	0.00	0.00	0.00	0.00
10	0.05	0.08	0.12	0.15	0.18	0.22
20	0.10	0.15	0.20	0.25	0.30	0.35
30	0.15	0.20	0.25	0.30	0.35	0.40
40	0.20	0.25	0.30	0.35	0.40	0.45

- 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-50@09-75X140-5050-#0-1g-6		Product Name		HK 6 in 1-Type i street lamp lens	
Product material		PC		Customer			
Package diagram		 <p style="text-align: center;"> <span>Single</span>      <span>Vacuum package</span>      <span>Box package</span> </p>					
Product packing		24	A/box	4	Box/layer		
		14	Layer/the box	1344	A/the box		
Packaging Materials	NO.	Material Code	Item name	Specification	Single box usage	Unit	Remarks
	1	2. 07. 0049	Blister box	23cm*21cm	56	PCS	
	2	2. 08. 0001	PE film	25cm*27cm	56	Block	
	3	2. 06. 0005	label paper inside the box	62mm*42mm	56	Piece	
	4	2. 06. 0005	label paper inside the box	62mm*70mm	1	Piece	
	4	2. 06. 0003	large clapboard	46cm*42cm	15	PCS	
	4	2. 06. 0011	large carton	48cm*44cm*37cm	1	PCS	
Remarks	Scattered packaging is not restricted by this specification, the customer has the requirements of the customer 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:



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 things, impurities	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 ≤ 10mm, no more than two				
Bubble	No bubbles are allowed	Visual		√	
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	√		
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 ≤ 1 mm and no more than 1 area within a 50x50 mm area	Visual		√	

**成都恒坤光电科技有限公司**

# 产品承认书

承认书编号：

客户名称：

产品名称： HK 6合1-TYPE I 路灯透镜

物料编码： 1.02.12705

产品型号： HK-50@09-75X140-5050-#0-1g-6

制造厂商：成都恒坤科技有限公司



供应商确认				客户承认			
拟制		日期		合格□		日期	
项目负责人		日期		不合格□		日期	
研发审核		日期		研发审核		日期	
品质审核		日期		品质审核		日期	
批准		日期		批准		日期	

(双方确认承认书合格后必须签字盖章)

工厂地址: 成都双流物联网产业园区物联二路恒坤光电园

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

传真：028-85887730

<http://www.herculux.cn/>

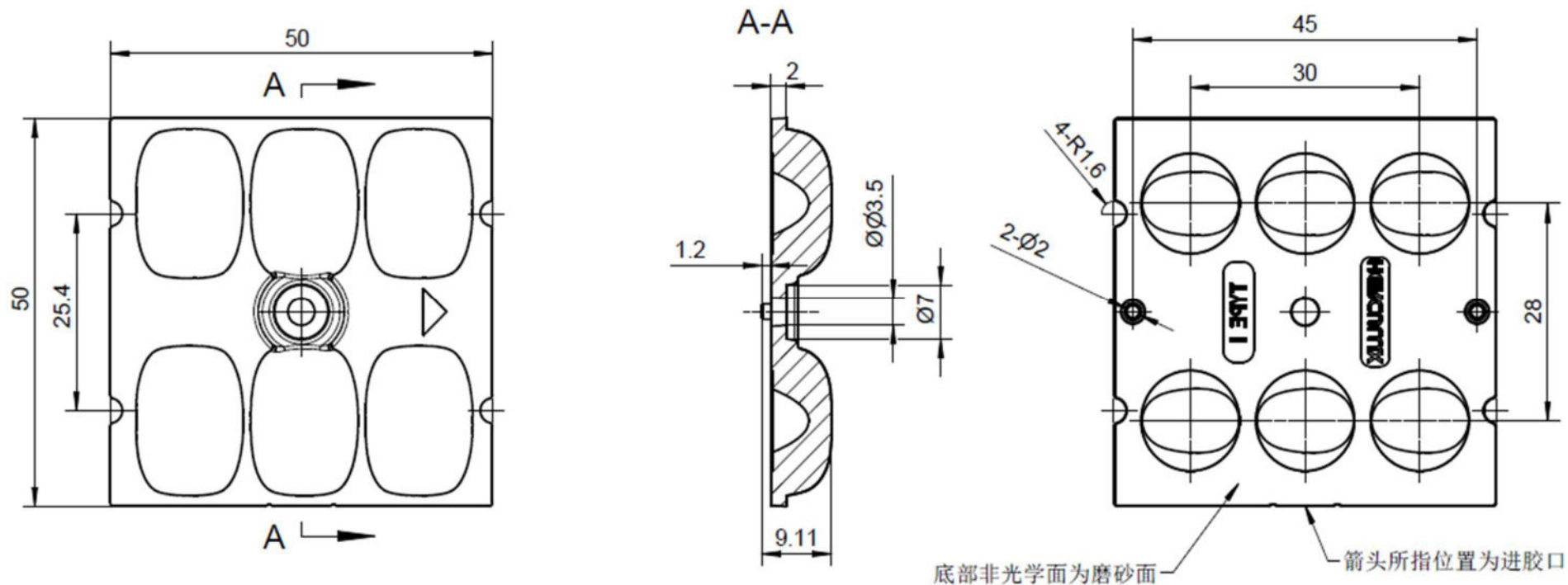
销售中心:深圳市南山区留仙大道南山云谷综合服务楼501-505

TEL: 0755-2937 1541

FAX: 0755-2907 5140

\*承认书1式2份，供应商和客户各持1份。

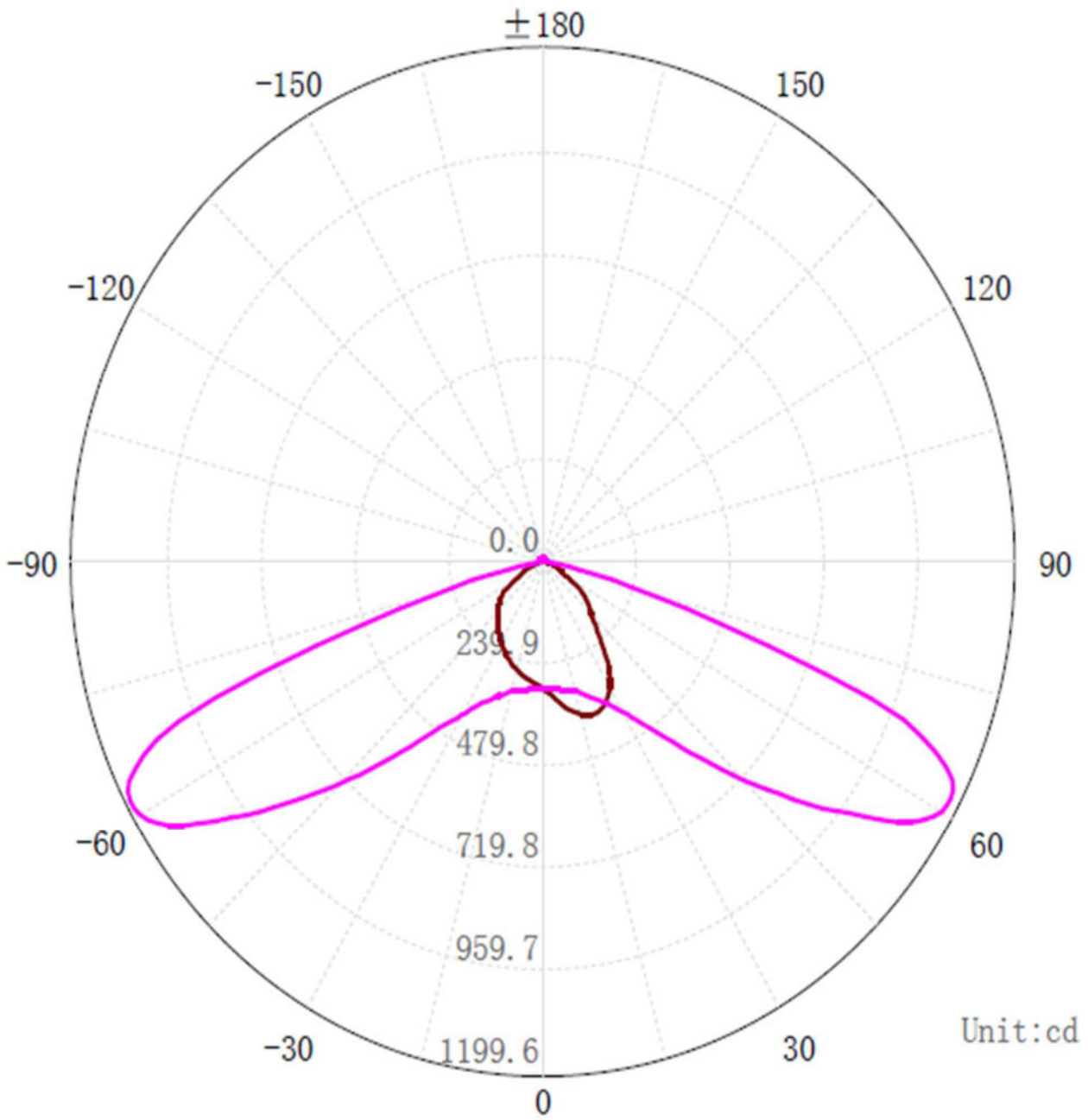
产品图片:	
产品型号:	HK-50@09-75X140-5050-#0-1g-6
尺寸(L*W*H/Φ*H):	L:50mm*W:50mm*H:09mm
材料:	PC
效率:	≥88%
耐高温(Topr):	材料极限耐温 : -40°C to +120°C 长期使用温度 : -40°C to +90°C
防水:	\
标准角度:	75°X140°
适配LES:	5050



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GB/T 14486 2008 MT5。
- 3、表面无飞边，缩水，气泡等缺陷。

光学设计			HK 6合1-TYPE I 路灯透镜		HK-50@09-75X140-5050-#0-1g-6			
结构设计					1.02.12705			
审核					图纸数目	数目	重量	
审定					CDHK			
材料:	PC							
MT5公差表 (mm)	基本尺寸	<3	3~10	24~65	65~140	140~250	250~450	>450
	公差值	±0.1	±0.15	±0.35	±0.50	±0.80	±1.2	±2.0



C Plane	[50%MaxAng.]	[10%MaxAng.]
— C0.0_180.0 :	80.2	134.8
— C90.0_270.0 :	142.2	154.7

	标准尺寸	尺寸上限	尺寸下限	测试结果1	测试结果2	测试结果3	测试结果4	测试结果5	测试结果6	测试结果7	测试结果8	判定	备注
长宽	50	50.15	49.7	49.9	49.9	49.9	49.9	49.9	49.9	49.8	49.9	OK	测试环境：在20℃-25℃的环境下达到热平衡后进行测试
厚度	2	2.15	1.9	2.05	2.04	2.08	2.06	2.06	2.05	2.03	2	OK	
孔径	3.5	3.65	3.3	3.5	3.56	3.5	3.48	3.5	3.52	3.54	3.48	OK	
定位柱高度	1.2	1.3	0.9	1.06	1.12	1.1	1.13	1.04	1.03	1.15	1.12	OK	
定位柱直径	2	2.1	1.9	2.04	2.04	2.03	2.04	2.02	2.03	2.03	2.03	OK	
定位柱间距	45	45.15	44.85	49.95	49.9	49.9	49.9	49.9	49.9	49.9	49.9	OK	
见附件二《透镜外观检验标准》													

2. 外观质量	见附件《外观检验标准》	E	无毛边	无毛边	无毛边	无毛边	OK
			无污迹	无污迹	无污迹	无污迹	

3. 材质	PC	颜色	透明	OK
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4. 光学指标	测试使用光源	5050					
	本透镜推荐使用的LED光源发光面大小和额定功率应与本测试的光源相当，如果需要超范围使用。请根据灯具的散热能力、使用环境的实际情况对透镜的耐温、光学效果等性能进行全面测试验证。以防影响透镜的使用寿命。						
		光学标准	测试结果1	测试结果2	测试结果3	测试结果4	判定
	角度						OK
	效率						OK
光斑	见签字封样的样品						

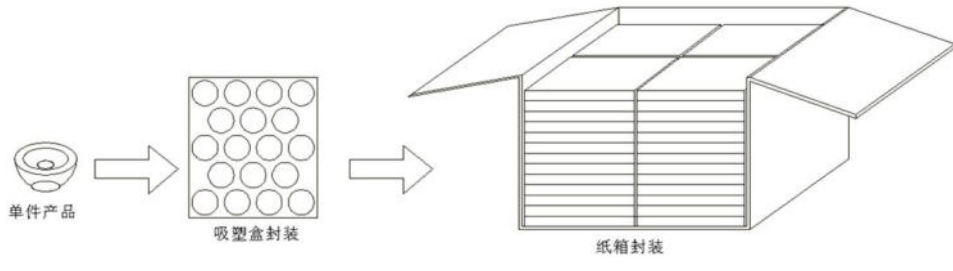
综合判定	合格
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备注：  
1、工具编号：V-游标卡尺 2D-二次元 H-高度规 M-工具显微镜 P-棒针 T-厚薄规 R-半径规E-目测。  
2、环境温度对产品尺寸的影响参考右表

### PC产品尺寸随温度影响变化情况表

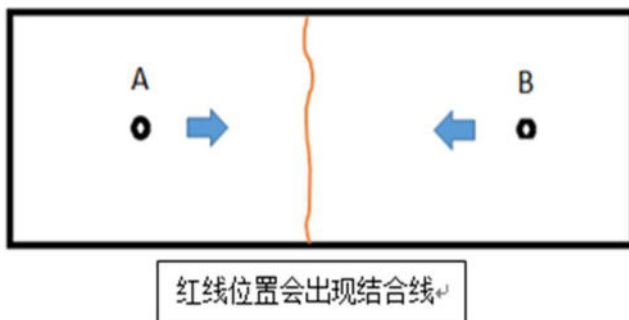
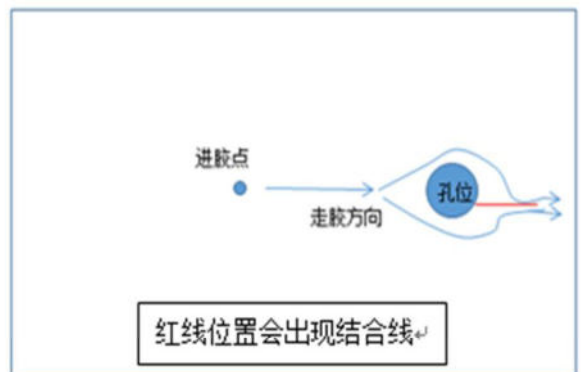
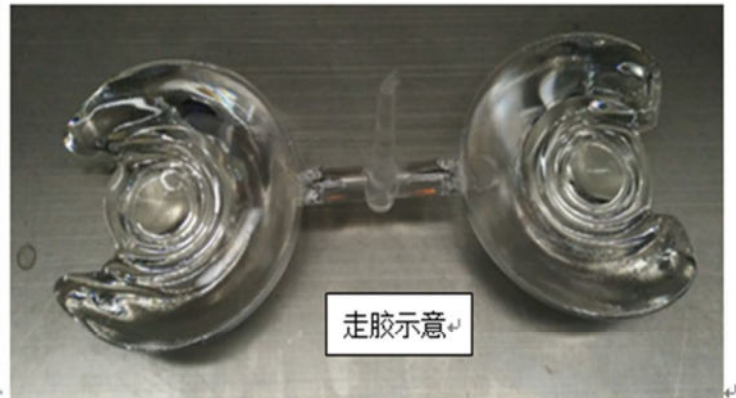
温度变化 (°C)	尺寸: 50mm	尺寸: 100mm	尺寸: 150mm	尺寸: 200mm	尺寸: 250mm	尺寸: 300mm
0	0.00	0.00	0.00	0.00	0.00	0.00
10	0.02	0.04	0.06	0.08	0.10	0.12
20	0.04	0.08	0.12	0.16	0.20	0.24
30	0.06	0.12	0.18	0.24	0.30	0.36
40	0.08	0.16	0.24	0.32	0.40	0.48

- 注意事项：
- 1、透镜装配过程中请带洁净手套操作，以防止透镜表面被污染。
  - 2、拿取透镜时尽量避免接触全反射面。
  - 3、透镜表面有污染，只能用柔软棉布蘸分析纯中性溶剂轻轻擦拭，禁止用工业溶剂擦拭。
  - 4、透镜的工作温度请在透镜材质耐温限度内，超出耐温限度会导致透镜损坏，影响透镜的使用寿命

产品型号	HK-50@09-75X140-5050-#0-1g-6		产品名称	HK 6合1-TYPE I 路灯透镜			
产品材料	PC		客户				
包装方式示意图							
	产品装箱	24	个/盒	4	盒/层		
	14	层/箱	1344	个/箱			
包装材料	NO.	料品编码	料品名称	规格	单箱用量	单位	备注
	1	2.07.0049	吸塑盒	23cm*21cm	56	个	
	2	2.08.0001	PE膜	25cm*27cm	56	块	
	3	2.06.0005	箱内标签纸	62mm*42mm	56	张	
	4	2.06.0005	箱体标签纸	62mm*70mm	1	张	
	5	2.06.0003	大隔板	46cm*42cm	15	个	
	6	2.06.0011	大纸箱	48cm*44cm*37cm	1	个	
备注	零散包装不受此规范限制，客户有要求的以客户要求为准						

### 特殊告知事项

胶体在通过孔位、柱位等结构，或厚度局部变薄的结构时，会形成熔接线。采用多点进胶的产品在注塑过程中也会因为溶胶的结合出现熔接线，如下图：



在产品上述结构处以及螺孔处出现的线条纹路属于正常现象，不会对产品的实际使用造成影响，且现阶段无法避免。请知悉



## 透镜外观检验标准

### 1 作业程序

#### 1.1.1 抽样标准、抽样方案和AQL

检验水平：GB/T2828.1-2012第一部分按接收质量限（AQL）检索的逐批检验抽样计划，一般检验水平 II 级水平，CR类缺陷系数0，MA类缺陷拒收水准AQL=0.65，MI类缺陷拒收水准AQL=1.0；缺陷等级见5.4。

### 2 代码对照表

代码	代码说明	单位	代码	代码说明	单位
N	数目/个	个	D	直径	mm
L	长度	mm	H	深度	mm
W	宽度	mm	DS	距离	mm
S	面积	mm <sup>2</sup>	SS	断差	mm

### 3 检验条件

3.1 视距与工时：检验的视距需在30-35cm，每一面的检查时间不超过12s，目视角度45-135度。

3.2 光线：2x40w冷白荧光灯，光源距透镜表面500-550mm；为了使得外观不良能被正确识别，照度应500-1000Lux，观察时间为10秒

3.3 检验人员视力在1.0（包括矫正视力）以上，无色盲、色弱。

### 4 外观检验标准

检验项目	判定标准	检验仪器	缺陷等级		
		检验方法	MI	MA	CR
签样核对	所有产品在开机及制程中都要核对外观签样，外观签样分合格样和限度样。	样品比对、目视			√
	1: 合格样 是指客户承认的产品外观及结构标准，量产前应当确认已经取得签样； 2: 限度样 是指针对某一异常单独制定的限度样本。限度样只针对其特定的异常点进行限度确认；优先级高于本表格中其它标准，在有限度样的情况下，一律以限度样为准				
毛边、批锋	不允许有影响尺寸及装配毛边、批锋。	目视、点规卡		√	
划痕	1: 非光学面及非外露面积划痕应当满足目视不明显且长度小于1/10所在面最大尺寸。	目视、点规卡、卡尺		√	

手印、指印	所有产品均不允许出现手印及指印	目视		√	
外来物、杂质	产品上不得附着外来物，包括油污、纤维、水口渣等				√
变形	产品图纸有标识变形度的以图纸为准，未标识的产品变形不得影响产品尺寸、装配及光学性能	目视、塞尺			√
顶出不良	产品不得出现顶出不良，包括不得有顶凸、在装配面上的顶针印不得高出产品面，非装配面的顶针印高度应不超出产品尺寸公差；顶针印应低于产品面不超过0.3；顶针印表面处理应与产品面一致。	目视、点规卡		√	
	顶出拉伤：光学面及装配后外露的外观面不允许有拉伤，结构面不允许有目视明显的拉伤。				
填充不足	产品装配后的外露面不得出现填充不足，结构面的填充不足不得影响装配，有争议的以签样为准。	目视、点规卡		√	
缩水	产品整个面缩水时，光学性能和尺寸必须满足要求，且目视不会明显影响外观；局部缩水参照点缺陷	目视、点规卡		√	
流痕、气纹、熔接线	1：允许存在结构无法避免的流痕及熔接痕；	目视		√	
	2：其余流痕不得出现在光学面，单条 $L \leq 10\text{mm}$ ，不超过2条				
气泡	不允许出现气泡。	目视		√	
异物、黑点、白点	目视不明显或 $D \leq 0.3\text{mm}$ 的黑点及异物在 $100 \times 100\text{mm}$ 的面积内不超过1个；超标异物黑点判定不良。	目视、点规卡	√		
破损	不允许出现破损	目视			√
冷胶	光学面不得有冷胶，非光学面冷胶应当满足目视不明显。	目视	√		
切口不良	1：不得影响产品尺寸，不得深入光学面，切口应平整光滑；	目视			√
	2：激光切割类产品，在加工完成后不得出现光学面灼伤。卷边不得影响产品安装				
	3：三板模及热流道的浇口不得出现残留。				
磨砂	磨砂面应均匀一致；掉砂应目视不明显，单个掉砂印记需要 $D \leq 1\text{mm}$ ，且 $50 \times 50\text{mm}$ 范围内不超过1处	目视		√	