



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

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

Customer :

Product : HK 45@26-D6 Spotlights lens

Material Code : 1.01.81537

PN : HK-45@26-24-D6-01-1g-1

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

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

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\*Approval In duplicate , for both supplier and customer.



**HERCULUX**  
恒坤光电

# Product Approval

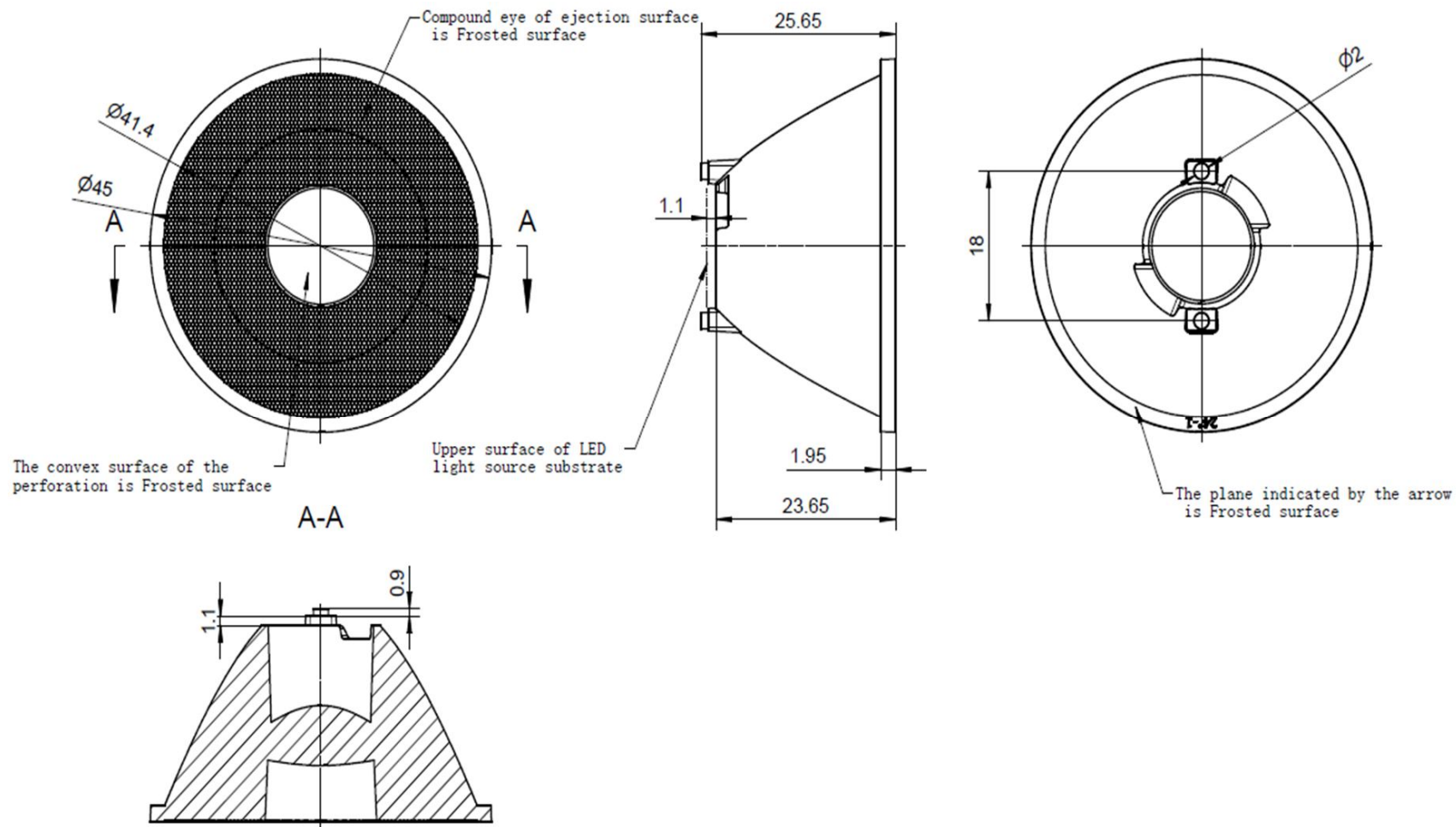
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Date updated: 2020/7/7

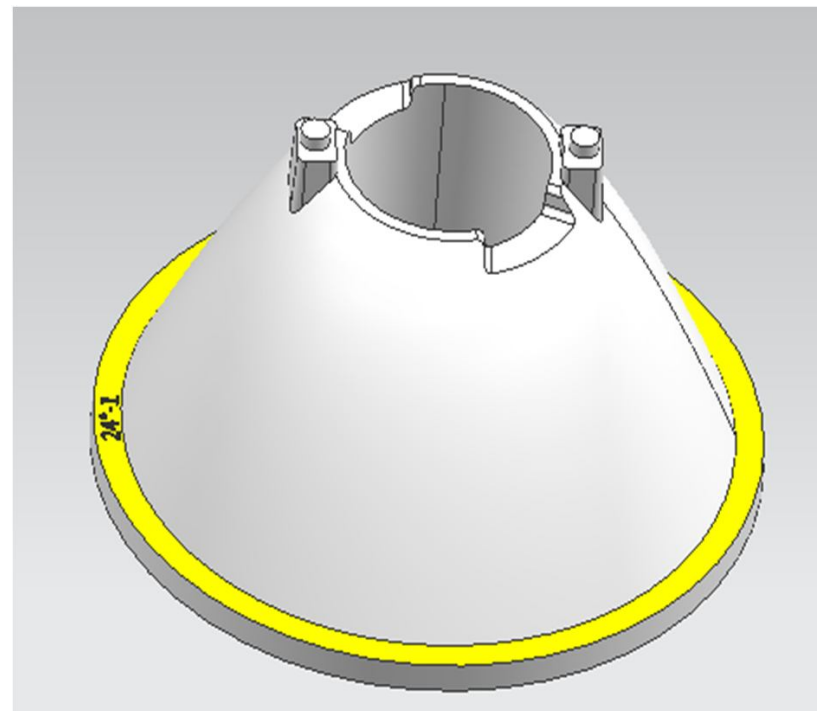
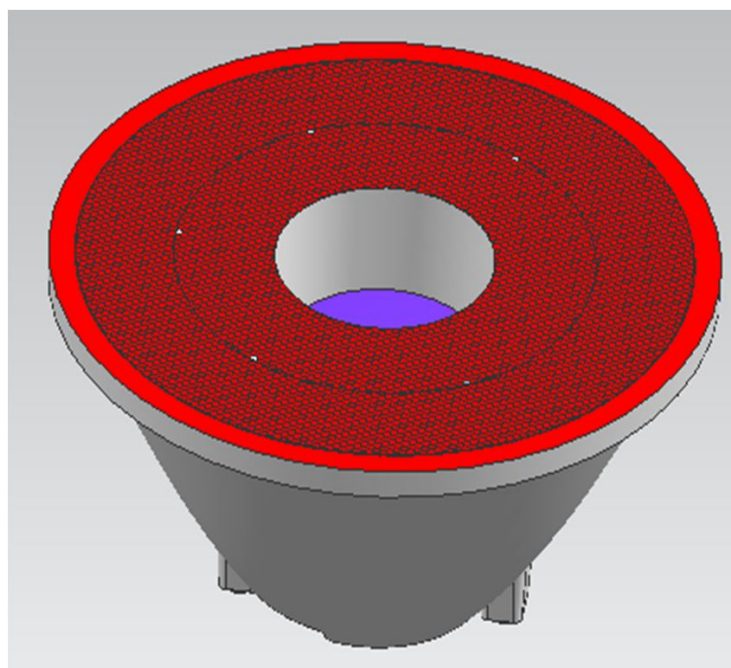
Product Picture:	
PN:	HK-45@26-24-D6-01-1g-1
Size(L*W*H/Φ*H):	Φ45*H:26mm
Material:	PC
Efficiency:	> 75%
Temperature(Topr):	-40°C to +120°C
FWHM:	24°
Matched LES:	D6

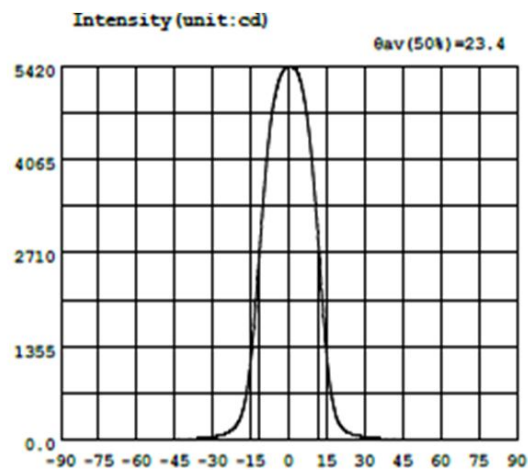
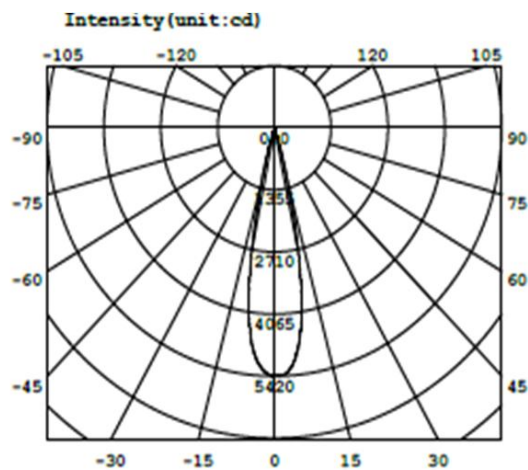


Technical Requirement:

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-45@26-24-D6-01-1g-1	1.01.81537
Structure Design		HK 45@26-D6 Spotlights lens	Pages	Qty
Assess			2	Weight
Authorized		Material:PC		CDHK





Intensity data:(deg , cd) C0-180

A	I	A	I	A	I	A	I	A	I	A	I
-90.0	0.3439	-88.5	4.071	-87.0	69.14	-85.5	4.986	-84.0	84.81	-82.5	107.5
-84.0	0.3567	-82.5	5.925	-81.0	144.0	-79.5	6.799	-78.0	197.6	-76.5	280.3
-76.5	0.3692	-75.0	8.498	-73.5	435.2	-72.0	9.307	-70.5	709.6	-69.0	1248
-70.5	0.3817	-69.0	10.21	-67.5	1500	-66.0	11.02	-64.5	2000	-63.0	2500
-63.0	0.3942	-61.5	12.02	-60.0	3000	-58.5	12.83	-57.0	4000	-55.5	5000
-55.5	0.4067	-54.0	13.84	-52.5	6000	-51.0	14.65	-50.0	8000	-48.5	10000
-48.5	0.4192	-47.0	14.85	-45.5	12000	-44.0	15.66	-42.5	16000	-41.0	20000
-41.0	0.4317	-39.5	15.86	-37.5	24000	-36.0	16.67	-34.5	30000	-33.0	40000
-33.0	0.4442	-31.5	16.87	-30.0	42000	-28.5	17.68	-27.0	54000	-25.5	72000
-25.5	0.4567	-24.0	17.88	-22.5	108000	-21.0	18.69	-19.5	144000	-18.0	216000
-18.0	0.4692	-16.5	18.89	-15.0	288000	-13.5	19.70	-12.0	378000	-10.5	540000
-10.5	0.4817	-9.0	19.90	-7.5	864000	-6.0	20.71	-4.5	1152000	-3.0	1512000
-3.0	0.4942	-1.5	20.91	0.0	2160000	1.5	21.72	3.0	2880000	4.5	3780000
4.5	0.5067	6.0	21.92	7.5	4320000	9.0	22.73	10.5	5760000	12.0	7560000
12.0	0.5192	13.5	22.93	15.0	10800000	16.5	23.74	18.0	14400000	21.0	21600000
21.0	0.5317	22.5	23.94	24.0	28800000	25.5	24.75	27.0	37800000	30.0	54000000
30.0	0.5442	28.5	24.95	33.0	86400000	34.5	25.76	36.0	115200000	39.0	151200000
39.0	0.5567	40.5	25.96	42.5	216000000	44.0	26.77	45.0	288000000	48.5	378000000
48.5	0.5692	48.5	26.97	51.0	540000000	50.0	27.78	52.5	720000000	55.5	936000000
55.5	0.5817	54.0	27.98	54.0	1080000000	55.5	28.79	57.0	1440000000	60.0	1296000000
60.0	0.5942	57.0	28.99	57.0	2160000000	58.5	29.80	60.0	2880000000	63.0	1728000000
63.0	0.6067	60.0	29.00	60.0	4320000000	61.5	30.81	63.0	5400000000	66.0	2304000000
66.0	0.6192	63.0	29.01	63.0	8640000000	64.5	31.82	66.0	10800000000	69.0	12960000000
69.0	0.6317	66.0	29.02	66.0	17280000000	67.5	32.83	69.0	21600000000	72.0	17280000000
72.0	0.6442	69.0	29.03	69.0	34560000000	70.5	33.84	72.0	43200000000	75.0	23040000000
75.0	0.6567	72.0	29.04	72.0	86400000000	73.5	34.85	75.0	108000000000	78.0	30240000000
78.0	0.6692	75.0	29.05	75.0	172800000000	76.5	35.86	78.0	216000000000	81.0	37440000000
81.0	0.6817	78.0	29.06	78.0	345600000000	79.5	36.87	81.0	432000000000	84.0	45720000000
84.0	0.6942	81.0	29.07	81.0	864000000000	82.5	37.88	84.0	1080000000000	87.0	54000000000
87.0	0.7067	84.0	29.08	84.0	1728000000000	85.5	38.89	87.0	2160000000000	90.0	72000000000
90.0	0.7192	87.0	29.09	87.0	3456000000000	88.5	39.90	90.0	5400000000000		
		90.0	29.10			90.0	40.91				

### Electricity Parameter:

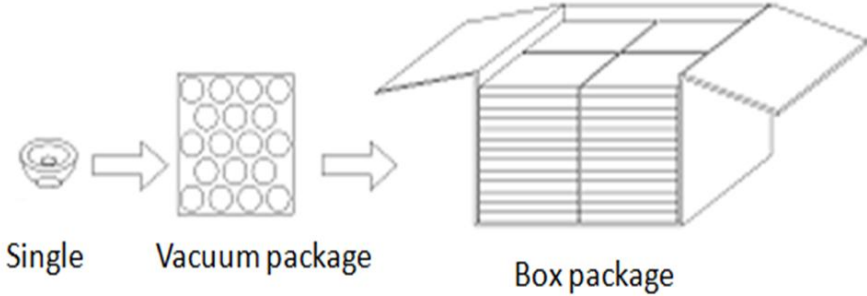
Current I: 0.1000A      Power: 0.8190W  
 Voltage V: 8.199V      PF: 1.000

### Optical Parameter(Distance=2.559m):

Equivalent Luminous flux:  $\Phi_{eff} = 884.8lm$       Efficiency:  $Eff=1080.43lm/W$   
 Diffuse angle: @ (25%): 29.1deg @ (50%): 23.4deg @ (75%): 17.7deg @ (50%): 23.4deg  
 Diffuse angle: @ (25%): 29.1deg @ (50%): 23.4deg @ (75%): 17.7deg @ (50%): 23.4deg  
 $I_{max}=5414cd$  (C=0.0deg,G=0.0deg)      C0-180Plane  $I_{max}= 5414cd$ (G=0.0deg)  
    C0-180Plane  $I_0= 5414cd$

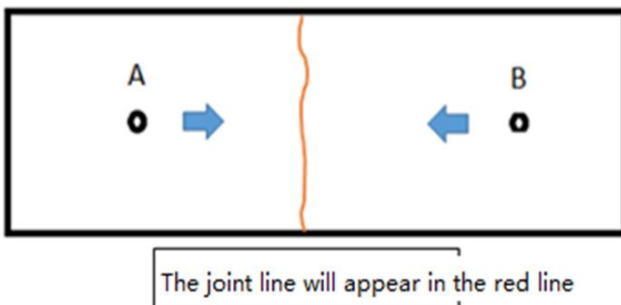
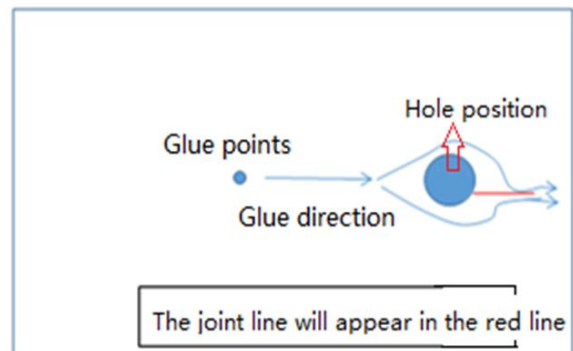
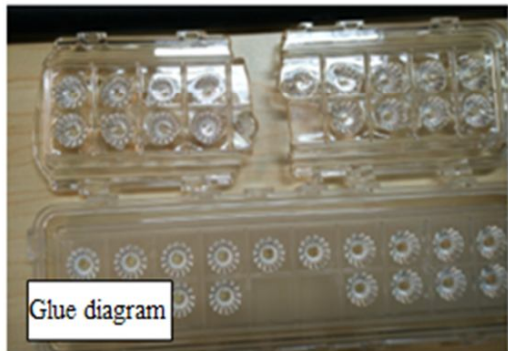
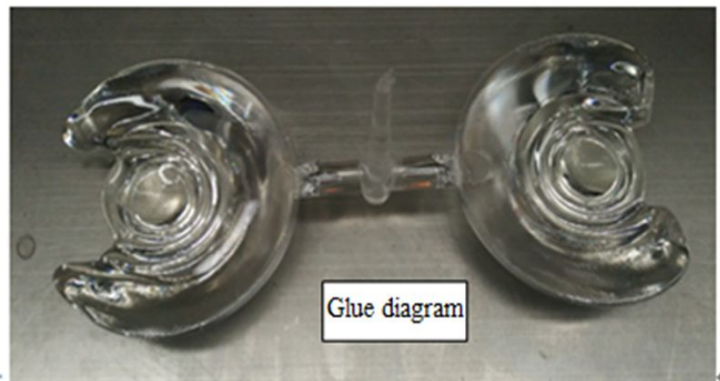


		Standard size	Upper Size limit	Lower size limit	Test result1	Test result2	Test result3	Test result4	Judgment	Remarks																																										
1.Size	Locating column diameter	2	/	/	1.88	1.88	1.89	1.9	OK																																											
	Positioning column spacing	18	/	/	18.04	18.05	18.02	18.01	OK																																											
	highly	23.65	/	/	23.63	23.67	23.7	23.63	OK																																											
	The largest diameter	45	/	/	44.86	44.87	44.89	44.86	OK																																											
	The thickness of the	1.95	/	/	1.99	2.02	2.01	2.08	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																																												
4.Optical index	Testing LED	D6																																																		
	FWHM	See light distribution curve																																																		
	Angle	/	/	/	/	/	/	/	OK																																											
	Efficiency	/	/	/	/	/	/	/	OK																																											
	K	/	/	/	/	/	/	/	OK																																											
Facula	See the signature sample																																																			
Comprehensive judgment	Qualified																																																			
Remarks:	<p>1、 Tool Number: V-Vernier Caliper 2D-Quadratic H-Height Gauge M-Tool Microscope P-Needle T-Thick Gauge R-Radius Gauge E-Visual.</p> <p>2、 Ambient temperature on the size of the product refer to the table on the right</p>																																																			
	<p style="text-align: center;"><b>PC product size changes with temperature table</b></p> <table border="1"> <caption>Data for PC product size changes with temperature table</caption> <thead> <tr> <th>Temperature (°C)</th> <th>50mm</th> <th>100mm</th> <th>150mm</th> <th>200mm</th> <th>250mm</th> <th>300mm</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> </tr> <tr> <td>10</td> <td>0.05</td> <td>0.08</td> <td>0.12</td> <td>0.15</td> <td>0.18</td> <td>0.22</td> </tr> <tr> <td>20</td> <td>0.08</td> <td>0.12</td> <td>0.18</td> <td>0.25</td> <td>0.32</td> <td>0.40</td> </tr> <tr> <td>30</td> <td>0.10</td> <td>0.15</td> <td>0.22</td> <td>0.30</td> <td>0.38</td> <td>0.48</td> </tr> <tr> <td>40</td> <td>0.12</td> <td>0.18</td> <td>0.28</td> <td>0.38</td> <td>0.48</td> <td>0.60</td> </tr> </tbody> </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	0.08	0.12	0.18	0.25	0.32	0.40	30	0.10	0.15	0.22	0.30	0.38	0.48	40	0.12	0.18	0.28	0.38	0.48	0.60
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	0.08	0.12	0.18	0.25	0.32	0.40																																														
30	0.10	0.15	0.22	0.30	0.38	0.48																																														
40	0.12	0.18	0.28	0.38	0.48	0.60																																														
Precautions:	<p>1、 Wear clean gloves during lens assembly to prevent contamination of the lens surface.</p> <p>2、 Take the lens try to avoid touching the total reflection surface.</p> <p>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.</p>																																																			

PN		HK-45@26-24-D6-01-1g-1		Product Name		HK 45@26-D6 Spotlights lens	
Product material		PC		Customer			
Package diagram		 <p style="text-align: center;">Single      Vacuum package      Box package</p>					
Product packing		18	A/box	4	Box/layer		
		11	Layer/the box	792	A/the box		
Packaging Materials	NO.	Material Code	Item name	Specification	Single box usage	Unit	Remarks
	1	2. 07. 0066	Blister box	23cm*21cm	44	PCS	
	2	2. 08. 0001	PE film	25cm*27cm	44	block	
	3	2. 06. 0005	Box label paper	62mm*42mm	44	zhang	
	4	2. 06. 0005	Box label paper	62mm*70mm	1	zhang	
	4	2. 06. 0003	The big plate	46cm*42cm	12	PCS	
	4	2. 06. 0011	The big 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 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		√	