

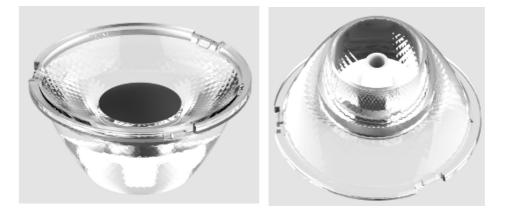
HERCULUX Chengdu HercuLux Photoelectric 恒坤光电 Technology Co.,Ltd **Product Approval**

Approval number :

Customer :

Manufacturer : Chengdu HercuLux Photoelectric Technology Co.,Ltd

PN	Code	Product
HK-HG-45@21-10-D4-20-1g-1_ASM	1. 01. 02456. 10	HK Dark 45@21-10 Degree lens
HK-HG-45@21-10-D4-20-1g-1	1.01.02456_01	HK Dark 45@21-10 degree lens_01
HK-HG-18@12-0575-S	1.01.02456_02.10	HK Dark 45@21-10 Degree Awl_02
HK-HG-17@06-0584-S	1.01.02456_03.10	HK Dark 45@21-10 Degree Cover_03



	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 http://www.herculux.com/ Sales Dept: Shenzhen Nanshan District Nanshan Cloud Valley Innovation Industrial Park Comprehensive Service Building, 501-505 TEL: 0755-2937 1541 FAX: 0755-2907 5140

*Approval In duplicate, for both supplier and customer.



Disclaimer

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.

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Customized products: The specifications and models of materials used are subject to the agreement between the two parties.

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.

product data:

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.

The measurement data presented in this acknowledgment is a performance test of the product based on our company's internal test conditions and quality requirements, and the reported data is a typical value of the average results of multiple measurements. Therefore, in some cases, the actual product may deviate from the data provided. We reserve the right to notify you in advance of this data.

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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 monomerm, 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.



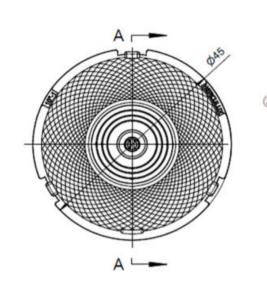
TEL: 0755-2937 1541 FAX: 0755-2907 5140 http

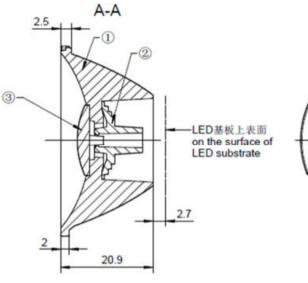
http://www.herculux.com/

Date updated: 2023/4/14

Product Picture:	
PN:	HK-HG-45@21-10-D4-20-1g-1_ASM
Size(L*W*H/Φ*H):	Ф:45mm; H:21mm
Material:	Components (PMMA, ceramic, PC (black))
Effiency:	N N
Temperature(Topr):	Material extreme temperature resistance : -40°C to +100°C long-term use temperature : -40°C to +80°C
Matched LES:	LUMINUS: CXM-4 (black lens backing)
FWHM:	10°
Recommended power Usage:	No more than 15W







										_						
			NO.		Code		Pr	oduct Na	iame PN				Product material			
			1	1. (01.02456_01	HK D	ark 450	21-10 de	gree lens_01	HK-HG-45@21-10-D	4-20-1g-	1	PMM	A		
			2	1.01	. 02456_02. 10	HK I	HK Dark 45021-10 Deg		egree Aw1_02	HK-HG-18@12-0	-18@12-0575-S		0575-S		cera	nic
		(3) 1.01.02456_03.10 HK Dark 45%			1-10 Deg	gree Cover_03	HK-HG-17@06-0584-S			PC (b	ack)					
			Optical	desig							HK-HG-45@21-10-D4-20-1g-1_ASM					
2		ructur	e desi					HK Dark 45@21-10 Degree lens			1.01.02456.10					
			Rev	iew						mber o	f drawi	qty	weight			
			Valid	ation					Material:				CDHK			
	65~140	140~	~250	25	50~450	>	450				-					
	±0.50	±0.	.80		±1.2	±2	2.0									

Technical remark:

MT5

Tolerance

table

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.

3~10

±0.15

10~24

±0.20

24~65

±0.35

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

<3

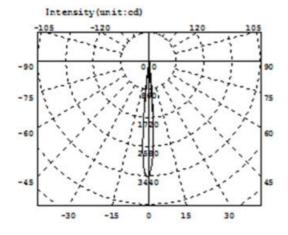
±0.1

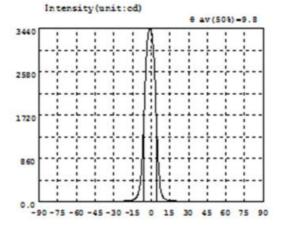
Basic size

lerance val

HK Dark 45@21-10 Degree lens

LUMINUS: CXM-4 (black lens herculux





Intensity data: (deg , cd) C0-180

λ	1	λ	I	λ	I	λ	I	λ	I	λ	I
-90.0	0.3051	-58.5	0.5899	-27.0	6.105	4.5	1413	36.0	2.055	67.5	0.4924
-88.5	0.3609	-57.0	0.5913	-25.5	7.542	6.0	665.6	37.5	1.965	69.0	0.4366
-87.0	0.3376	-55.5	0.6136	-24.0	9.169	7.5	247.3	39.0	1.779	70.5	0.4151
-85.5	0.3143	-54.0	0.6101	-22.5	11.29	9.0	116.1	40.5	1.542	72.0	0.3743
-84.0	0.2828	-52.5	0.6666	-21.0	13.39	10.5	61.84	42.0	1.379	73.5	0.3892
-82.5	0.2925	-51.0	0.6349	-19.5	16.00	12.0	38.50	43.5	1.246	75.0	0.4063
-81.0	0.2717	-49.5	0.6894	-18.0	19.30	13.5	27.95	45.0	1.099	76.5	0.3390
-79.5	0.3294	-48.0	0.7600	-16.5	23.49	15.0	22.47	46.5	1.104	78.0	0.3616
-78.0	0.3283	-46.5	0.8455	-15.0	30.32	16.5	18.45	48.0	1.036	79.5	0.5292
-76.5	0.3397	-45.0	0.9757	-13.5	44.75	18.0	15.38	49.5	0.9287	81.0	0.3954
-75.0	0.3136	-43.5	1.086	-12.0	78.50	19.5	12.83	51.0	0.8647	82.5	0.3652
-73.5	0.5274	-42.0	1.268	-10.5	159.3	21.0	10.70	52.5	0.8345	84.0	0.2955
-72.0	0.4119	-40.5	1.480	-9.0	325.9	22.5	8.733	54.0	0.7388	85.5	0.2780
-70.5	0.4125	-39.0	1.643	-7.5	782.9	24.0	7.139	55.5	0.6953	87.0	0.2825
-69.0	0.4246	-37.5	1.787	-6.0	1606	25.5	5.877	57.0	0.6785	88.5	0.2837
-67.5	0.4406	-36.0	2.020	-4.5	2534	27.0	4.894	58.5	0.6325	90.0	0.0177
-66.0	0.4646	-34.5	2.292	-3.0	3194	28.5	4.061	60.0	0.6412		
-64.5	0.4508	-33.0	2.721	-1.5	3424	30.0	3.502	61.5	0.5455		
-63.0	0.4843	-31.5	3.290	0.0	3407	31.5	2.934	63.0	0.5476		
-61.5	0.5036	-30.0	3.970	1.5	3095	33.0	2.582	64.5	0.5948		
-60.0	0.5152	-28.5	4.913	3.0	2385	34.5	2.358	66.0	0.5600		

Electricity Parameter:

Current	I:	0.1000A	Power:	3.660W
Voltage	V:	36.59V	PF:	1.000

Optical Parameter (Distance=2.410m):

Equivalent Luminous	s flux: Φ	eff= 119.31m	Effici	ency: Eff=32.60	lm/W
Diffuse angle:	@ (25%) :	12.8deg @ (50%):	9.8deg	@(75%): 7.0deg	@(50%): 9.8deg
Diffuse angle:	@ (25%) :	12.8deg@(50%):	9.8deg	@(75%): 7.1deg	@(50%): 9.8deg
Imax=3439cd (C=0.0d	leg,G=-1.	0deg)	C0-18	OPlane Imax= 34	39cd (G=-1.0deg)
			C0-18	OPlane IO= 3407	cd

IES——

Sample parameter test rep

HERCULUX 個坤光电

		Stan siz				Test result2	Test result3	Test result4	Jud gme nt	Remarks
	diamet	er 4	5	\sum	45.03	44. 99	45.07	45.07	\nearrow	Test environment: In 20 ℃ -25 ℃
1.Size	heigh	t 20.	.9		20. 93	20. 9	21.02	20.91	\sum	environment to achieve thermal equilibrium after the
	thickne	ess 2			2.13-2	2.11	2.15	2.1	\setminus	test.
			Gat	e shear c	an not affect th	e appearar	nce of the la	amp		
			Se	e attachm	ent "Appearan	ce Inspecti	on Standar	ds"		
2.Appear	rance	See attachme "Appeara	-		No burr	No burr	No burr	No bu	rr	ОК
Quality		Inspection	on		No stains	No stains	No stains	No stai	ns	
3.Materia	al	Compor	nents (PMMA,	ceramic,	PC (black))	Color	Tra	nsparent		ОК
	to the p	LUMINUS: CXM-4 (black lens backing) The size and rated power of the light-emitting surface (LES) of the COB recommended by this lens should conform the parameters in the product basic information table. if it is required to be out of range. According to the heat sipation capability of the lamp and the actual conditions of the use environment, the lens should be fully tested								
4.Optica	FWHI	Л		and	<u>tested to prev</u> See lic	ent the leng ht distributi				
l index	angle				9.8	9.7 9.7 9.8				
	K-val				28.90	28.60	30. 20	27.91	_	
									-	
	Efficie				63.64%	64.71%	63.10%	62.57%		
Compre		See the sig	gnature sampi	e						
•		Facula See the signature sample ` prehensive Outplified								
judg	Iment					Qı	ualified			

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.).
 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.

Packaging Information



PI	N	HK-HG-45@21-10-D4-20-1	g-1_ASM	Product Name	HK Dark 45@21-	10 Degre	ee lens		
Product	material	C	omponents (P	MMA, ceramic, PC	(black))				
Package diagram		Single Va	cuum packa	ege Bo	ox package	2	>		
Product	packing	18	A/ Box	4	pcs/Layer				
		11	Layer/Box	792	A/ Carton				
	NO.	Part No	Part name	Size	Dosage	Unit	Remarks		
	1	2.07.0066	Blister box	23cm*21cm	44	BAG			
Packagin	2	2.08.0001	PE film	30cm*30cm	44	PCS			
g	3	2.06.0005	Reel label paper	6.2cm*8cm	44	PCS			
Materials	4	2.06.0005	Box label paper	6.2cm*9.2cm	1	PCS			
	5	2.06.0003	big plate	46.8cm*42.8cm	12	PCS			
	6	2.06.0015	big flat carton	48cm*44cm*19c	m 1	PCS			
Remarks		The loose packing is not subject to this specification. Customer's requirements shall prevail							

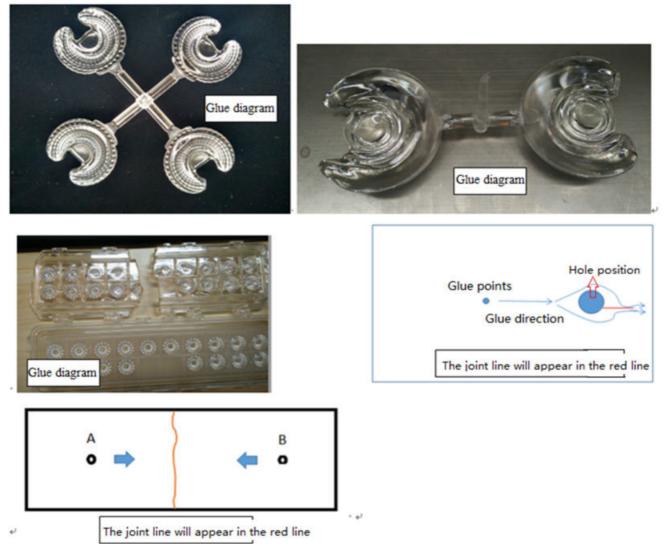


Annex I

Special notice

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

Synmeu



Please note :

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



Appearance inspection standards

1 Operating procedures

1.1.1Sampling standards, sampling plan and AQL

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

2 Code table

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

3 Test conditions

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

3.2 Light: 2x40w cool white fluorescent lamp, the light source is 500-550mm away from the lens surface; in order to make the appearance defect can be correctly recognized, the illumination should be 500-1000Lux, and the observation time is 10 seconds.

3.3 Visual inspection staff should be 1.0 (including corrected visual acuity) above, no color blindness, color weakness.

4 Appearance inspection standards

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

	2: The limited sample refers to the limit of a particular exceptionally developed sample. Limit the sample only for its specific point of exception to confirm; The priority is higher than the other criteria in this table. When there is a limited sample, the limit sample shall prevail.			
Raw edge	Not allowed to affect the size and assembly	Visual, point card	~	
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	V	
Foreign objects, black spots, white spots	The product may not be attached to foreign objects, including oil, fiber, dregs of water gap and so on			V
Deformation	Insufficient filling shall not affect the appearance of the assembly and the exposed surfaces.	Visual, feeler		V
Poor ejection	Products may not appear bad ejection, including no convex top, thimble printed on the assembly surface shall not be higher than the product surface, non-assembled surface thimble height should not exceed the product size tolerances; thimble printing should be less than the product surface and no more than 0.3; thimble surface treatment should be consistent with the product side. Ejection strain: the optical surface and the appearance of the exposed surface after assembly are not allowed to have a strain, and the structural surface does not allow visual obvious strain.	Visual, point card	~	
Insufficient filling	Insufficient filling shall not affect the appearance of the assembly and the exposed surfaces, The signature sample shall prevail.	Visual, point card	V	
Shrink	When the entire surface of the product shrinks, the optical properties and dimensions must meet the requirements, and the visual will not significantly affect the appearance.Part shrink reference point defects	Visual, point card	~	
Flow marks、Welding line	 Product does not allow the presence of flow marks and welding lines unless the structure can not be avoided; The remaining flow marks shall not appear in the estimate surface. A simple line of 40mm and appear in the setting surface. 	Visual	V	
	in the optical surface, a single L \leq 10mm, no more than two			
Bubble	No bubbles are allowed	Visual	\checkmark	

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



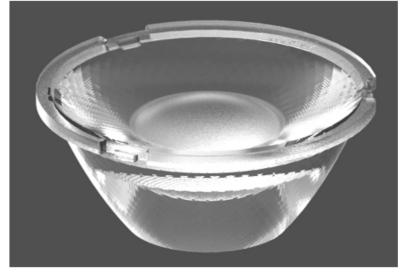
HERCULUX Chengdu HercuLux Photoelectric 恒坤光电 Technology Co.,Ltd Product Approval

Approval number:

Customer:

Manufacturer: Chengdu HercuLux Photoelectric Technology Co.,Ltd

PN	Code	Product
HK-HG-45@21-15-D6-21-1g-1	1.01.91887	HK Dark 45@21-15° lens
HK-HG-45@21-24-D6-21-1g-1	1.01.91831	HK Dark 45@21-24° lens
HK-HG-45@21-36-D6-21-1g-1	1.01.91889	HK Dark 45@21-36° lens
HK-HG-45@21-50-D6-21-1g-1	1.01.92073	HK Dark 45@21-50° lens



	Supplier co	onfirmation	Client confirmation				
Proposed		DATE	Qualified□		5.475		
Project manager		DATE	Unqualified□		DATE		
Audit		DATE	Audit		DATE		
Approved		DATE	Approved		DATE		
Stamp		DATE	Stamp		DATE		

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Factory: Chengdu Shuangliu District, lot industrial park 2 road HercuLux Photoelectric ParkPhone:028-85887727 (801)028-85887990 (801)Fax:028-85887730http://www.herculux.com/Sales Dept:Shenzhen NanshanDistrict Nanshan Cloud Valley Innovation Industrial Park Comprehensive Service Building, 501-TEL:0755-2937 1541FAX:0755-2907 5140

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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.

第2页

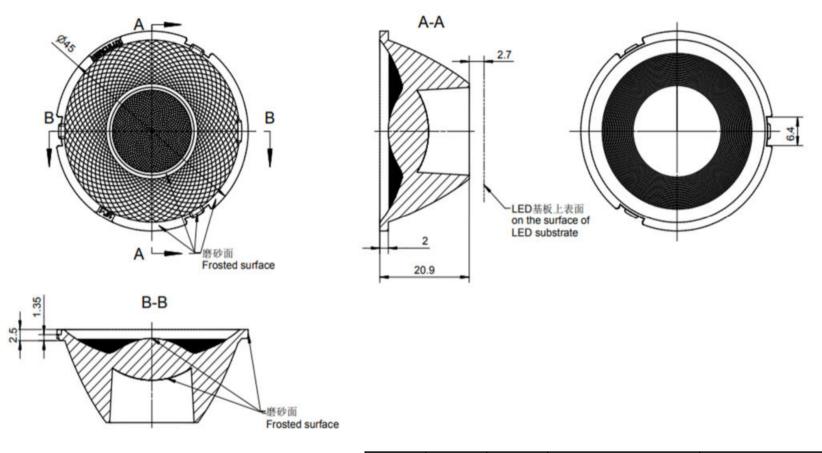


http://www.herculux.com/

Date updated: 2023/5/18







Technical remark:

MT5

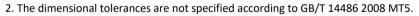
Tolerance

table

Basic size

lerance val

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



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

<3

±0.1

*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<3.2 μ m

3~10

±0.15

10~24

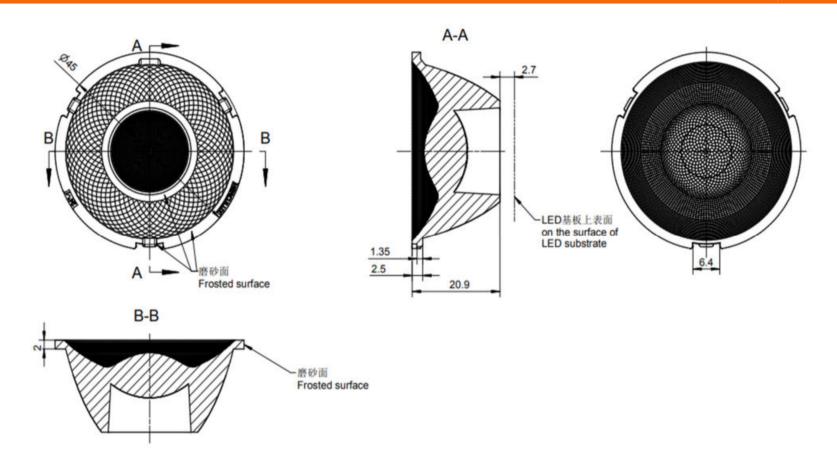
±0.2

24~65

±0.35

		Optical	design					HK Dark 45@21-15º lens			(-HG-4	5@21-15-D6	-21-1g	-1
008 MT5.		Structur	e desigr									1.01.91887		
f the contact		Rev	view							mber o	f drawi	qty	wei	ght
		Valid	ation					Material:	PMMA	СДНК				
65~140	140~	~250	250~	450	>4	450				-				
±0.50	±0	.80	±1.2	2	±2	2.0								

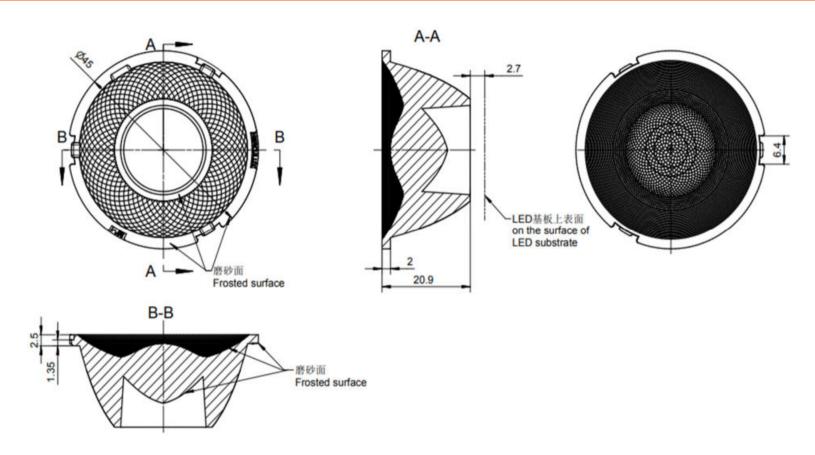




Technical remark:

1. The 3D m	ap is not indi	unded cornei	rs and draft a	ngle.	Optical design							HK-HG-45@21-24-D6-21-1g-1					
2. The dime	Structu	ıre desigr				HK Dar	< 45@21-24º lens			1.01.91831							
*4. When th	 The surface has no flash, shrinkage, bubbles and other defects. *4. When the lamp adopts rubber ring for waterproofing: the roughness of the contact 													mber of	⁻ drawi	qty	weight
surface betw	ween the radi	ator and the	rubber ring	is required: F	Ra<3.2μm		Vali	dation				Material:	PMMA			CDHK	
MT5 Tolerance	Basic size <3 3° 10 10° 24 24° 65 65° 140 1							250~	~450	>4	50						
							±0.80	±1	.2	±2	.0						

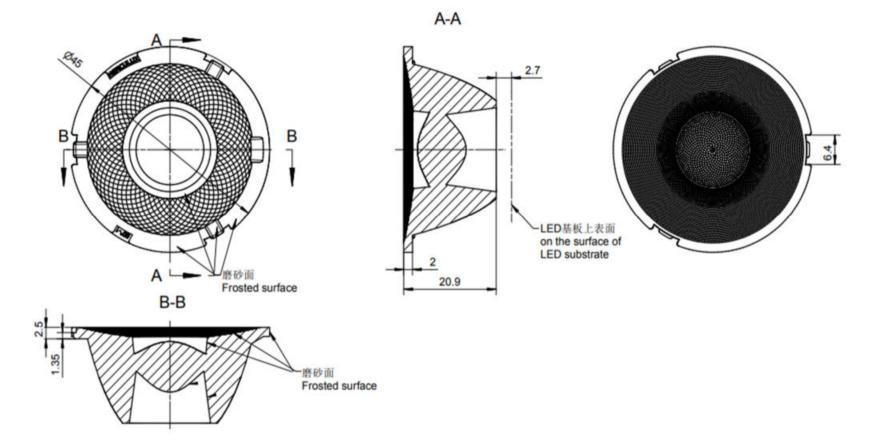




Technical remark:

1. The 3D m	ap is not indi	cated for rou	unded cornei	rs and draft a	ingle.	Optica	Optical design							HK-HG-45@21-36-D6-21-1g-1			
2. The dimer	Structu	re desigr				HK Dark 4	45@21-36º lens			1.01.91889							
*4. When th	 The surface has no flash, shrinkage, bubbles and other defects. *4. When the lamp adopts rubber ring for waterproofing: the roughness of the contact 													mber of	drawi	qty	weight
surface betv	ween the radi	ator and the	e rubber ring	is required: F	Ra<3.2μm		Vali	dation				Material:	PMMA		•	СДНК	
MT5 Tolerance	Basic size	<3	3~10	10~24	24~65	65~140	140~250	250~	450	>45	0	-		-			
							±0.80	±1.2	2	±2.0)						



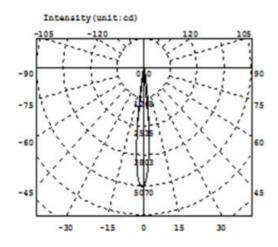


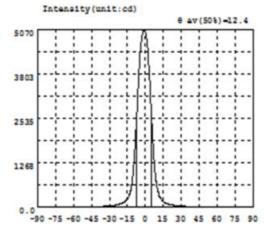
Technical remark:

	ap is not indi			-	Optic	Optical design					HK-HG-45@21-50-D6-21-1g-1						
2. The dime	Structi	ure desigr				HK Dark	45@21-50º lens			1.01.92073							
*4. When th	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													mber o	f drawi	qty	weight
surface betw	ween the radi	ator and the	rubber ring	is required: F	Ra<3.2μm		Val	idation				Material:	PMMA		<u>.</u>	CDHK	
MT5 Tolerance	Basic size <3 $3^{\circ}10$ $10^{\circ}24$ $24^{\circ}65$ $65^{\circ}140$ 1							250~	~450	>4	50						
							±0.80	±1	L.2	±2	.0						









Intensity data: (deg , cd) CO-180

λ	I	λ	I	λ	1	λ	1	λ	1	λ	1
-90.0	1.694	-58.5	11.68	-27.0	55.22	4.5	2989	36.0	25.57	67.5	6.990
-88.5	1.783	-57.0	12.21	-25.5	63.22	6.0	1971	37.5	22.99	69.0	6.283
-87.0	1.975	-55.5	12.82	-24.0	73.28	7.5	1199	39.0	20.97	70.5	5.604
-85.5	2.180	-54.0	13.47	-22.5	85.84	9.0	727.6	40.5	19.43	72.0	5.056
-84.0	2.448	-52.5	14.18	-21.0	101.5	10.5	466.1	42.0	18.19	73.5	4.484
-82.5	2.781	-51.0	14.89	-19.5	122.4	12.0	299.7	43.5	17.06	75.0	3.977
-81.0	3.164	-49.5	15.71	-18.0	149.9	13.5	218.3	45.0	16.12	76.5	3.513
-79.5	3.548	-48.0	16.68	-16.5	187.8	15.0	168.7	46.5	15.22	78.0	3.088
-78.0	3.969	-46.5	17.78	-15.0	247.5	16.5	135.0	48.0	14.39	79.5	2.664
-76.5	4.406	-45.0	18.84	-13.5	349.5	18.0	110.1	49.5	13.65	81.0	2.282
-75.0	4.891	-43.5	19.83	-12.0	542.4	19.5	91.59	51.0	13.02	82.5	1.922
-73.5	5.428	-42.0	20.87	-10.5	898.3	21.0	78.20	52.5	12.41	84.0	1.738
-72.0	5.961	-40.5	22.24	-9.0	1516	22.5	67.83	54.0	11.88	85.5	1.550
-70.5	6.515	-39.0	24.01	-7.5	2426	24.0	59.66	55.5	11.74	87.0	1.380
-69.0	7.156	-37.5	26.13	-6.0	3456	25.5	53.00	57.0	11.60	88.5	1.361
-67.5	7.810	-36.0	28.72	-4.5	4325	27.0	47.67	58.5	10.75	90.0	1.278
-66.0	8.444	-34.5	31.88	-3.0	4849	28.5	43.65	60.0	10.01		
-64.5	9.100	-33.0	35.31	-1.5	5051	30.0	40.40	61.5	9.457		
-63.0	9.812	-31.5	38.90	0.0	4993	31.5	36.79	63.0	8.789		
-61.5	10.43	-30.0	43.31	1.5	4647	33.0	32.56	64.5	8.246		
-60.0	11.10	-28.5	48.79	3.0	3934	34.5	28.72	66.0	7.598		

Electricity Parameter:

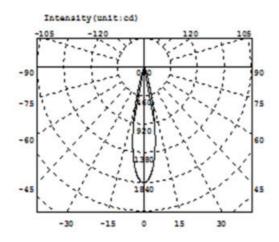
Current	I:	0.1000A	Power:	3.570W
Voltage	V:	35.70V	PF:	1.000

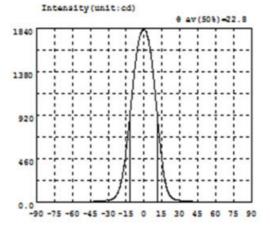
Optical Parameter (Distance=2.559m):

Equivalent Luminous	s flux: 4 eff= 383.61m	Efficiency: Eff=107.481m/W
Diffuse angle:	@(25%): 16.8deg@(50%):	12.4deg@(75%): 8.6deg @(50%): 12.4deg
Diffuse angle:	@(25%): 16.8deg @(50%):	12.4deg@(75%): 8.8deg @(50%): 12.4deg
Imax=5062cd (C=0.0d	leg,G=-1.0deg)	CO-180Plane Imax= 5062cd (G=-1.0deg)
		C0-180Plane IO= 4993cd









Intensity data: (deg , cd) CO-180

λ	1	λ	I	λ	Ĩ	λ	1	λ	1	λ	I
-90.0	1.005	-58.5	6.987	-27.0	36.47	4.5	1652	36.0	14.54	67.5	4.511
-88.5	1.073	-57.0	7.298	-25.5	46.21	6.0	1525	37.5	13.20	69.0	4.160
-87.0	1.152	-55.5	7.531	-24.0	63.31	7.5	1364	39.0	12.08	70.5	3.818
-85.5	1.278	-54.0	7.760	-22.5	92.56	9.0	1182	40.5	11.19	72.0	3.492
-84.0	1.436	-52.5	7.984	-21.0	138.7	10.5	984.0	42.0	10.43	73.5	3.138
-82.5	1.596	-51.0	8.258	-19.5	204.1	12.0	787.9	43.5	9.784	75.0	2.798
-81.0	1.891	-49.5	8.593	-18.0	289.9	13.5	601.4	45.0	9.270	76.5	2.491
-79.5	2.208	-48.0	8.929	-16.5	411.2	15.0	437.8	46.5	8.912	78.0	2.204
-78.0	2.515	-46.5	9.360	-15.0	556.7	16.5	290.6	48.0	8.619	79.5	1.881
-76.5	2.821	-45.0	9.948	-13.5	723.8	18.0	195.7	49.5	8.376	81.0	1.604
-75.0	3.172	-43.5	10.63	-12.0	902.4	19.5	129.0	51.0	8.185	82.5	1.428
-73.5	3.533	-42.0	11.44	-10.5	1091	21.0	85.49	52.5	8.007	84.0	1.272
-72.0	3.861	-40.5	12.43	-9.0	1275	22.5	59.60	54.0	7.795	85.5	1.133
-70.5	4.181	-39.0	13.61	-7.5	1447	24.0	44.46	55.5	7.534	87.0	1.021
-69.0	4.528	-37.5	15.05	-6.0	1592	25.5	35.37	57.0	7.190	88.5	0.9853
-67.5	4.861	-36.0	16.92	-4.5	1704	27.0	29.55	58.5	6.833	90.0	0.9400
-66.0	5.186	-34.5	18.91	-3.0	1779	28.5	25.55	60.0	6.442		
-64.5	5.549	-33.0	21.01	-1.5	1822	30.0	22.58	61.5	5.998		
-63.0	5.907	-31.5	23.45	0.0	1834	31.5	20.05	63.0	5.613		
-61.5	6.322	-30.0	26.49	1.5	1805	33.0	17.90	64.5	5.259		
-60.0	6.673	-28.5	30.55	3.0	1744	34.5	16.09	66.0	4.903		

Electricity Parameter:

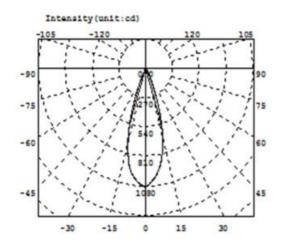
Current I:	0.1000A	Power:	3.570W
Voltage V:	35.70V	PF:	1.000

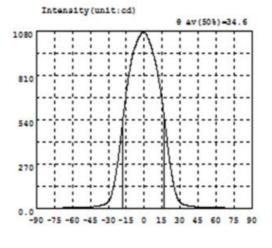
Optical Parameter (Distance=2.410m):

Equivalent Luminou	s flux: 4 eff= 336.	91m Efficiency:	Eff=94.401m/W
Diffuse angle:	@(25%): 30.7deg@(50%): 22.8deg @ (75%)): 15.5deg @(50%): 22.8deg
Diffuse angle:	@(25%): 30.7deg@(50%): 22.8deg @ (75%)): 15.5deg @ (50%): 22.8deg
Imax=1834cd (C=0.0	deg,G=-0.5deg)	CO-180Plane	Imax= 1834cd (G=-0.5deg)
		CO-180Plane	I0= 1834cd









Intensity data: (deg , cd) CO-180

λ	1	A	1	λ	I	λ	1	λ	1	λ	1
-90.0	0.9809	-58.5	7.651	-27.0	96.45	4.5	1010	36.0	20.46	67.5	6.555
-88.5	1.019	-57.0	7.528	-25.5	142.3	6.0	977.2	37.5	18.20	69.0	5.893
-87.0	1.122	-55.5	7.543	-24.0	199.3	7.5	939.8	39.0	16.41	70.5	5.285
-85.5	1.325	-54.0	7.720	-22.5	267.2	9.0	899.6	40.5	14.96	72.0	4.695
-84.0	1.531	-52.5	8.023	-21.0	347.5	10.5	847.9	42.0	13.57	73.5	4.159
-82.5	1.839	-51.0	8.455	-19.5	439.1	12.0	784.9	43.5	12.55	75.0	3.707
-81.0	2.235	-49.5	8.996	-18.0	531.4	13.5	717.4	45.0	12.14	76.5	3.307
-79.5	2.618	-48.0	9.684	-16.5	625.0	15.0	642.2	46.5	11.99	78.0	2.911
-78.0	3.000	-46.5	10.48	-15.0	709.7	16.5	560.3	48.0	11.75	79.5	2.530
-76.5	3.398	-45.0	11.46	-13.5	783.4	18.0	474.8	49.5	11.18	81.0	2.160
-75.0	3.846	-43.5	12.50	-12.0	849.6	19.5	378.5	51.0	10.60	82.5	1.846
-73.5	4.346	-42.0	13.75	-10.5	910.6	21.0	296.9	52.5	10.08	84.0	1.598
-72.0	4.908	-40.5	15.41	-9.0	956.8	22.5	224.9	54.0	9.556	85.5	1.418
-70.5	5.537	-39.0	17.72	-7.5	987.2	24.0	164.1	55.5	8.921	87.0	1.276
-69.0	6.164	-37.5	19.22	-6.0	1016	25.5	114.0	57.0	8.441	88.5	1.247
-67.5	6.797	-36.0	21.72	-4.5	1040	27.0	76.13	58.5	8.216	90.0	1.236
-66.0	7.354	-34.5	24.67	-3.0	1058	28.5	52.55	60.0	8.178		
-64.5	7.705	-33.0	28.41	-1.5	1074	30.0	38.36	61.5	8.114		
-63.0	7.912	-31.5	34.07	0.0	1077	31.5	30.78	63.0	7.957		
-61.5	7.932	-30.0	44.46	1.5	1060	33.0	26.32	64.5	7.666		
-60.0	7.837	-28.5	64.13	3.0	1036	34.5	23.17	66.0	7.182		

Electricity Parameter:

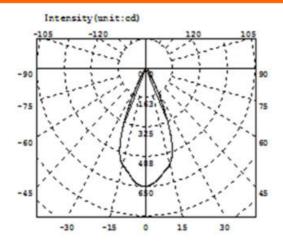
Current I:	0.1000A	Power:	3.569W
Voltage V:	35.70V	PF:	1.000

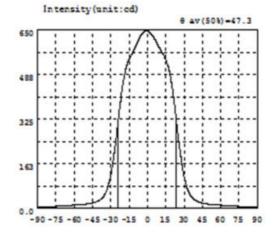
Optical Parameter (Distance=2.559m):

Equivalent Luminous	flux: Φ eff= 390	0.11m	Efficiency: Eff=109.331m/W	
Diffuse angle:	8 (25%): 43.9deg (8 (50%) :	34.6deg @ (75%): 24.3deg @ (50%): 34.6d	deg
Diffuse angle:	8 (25%): 43.9deg (은 (50응) :	34.6deg @ (75%): 24.3deg @ (50%): 34.6d	deg
Imax=1079cd (C=0.0d	leg,G=-0.5deg)		CO-180Plane Imax= 1079cd (G=-0.5deg	r)
			C0-180Plane IO= 1077cd	









Intensity data: (deg , cd) C0-180

λ	1	λ	I	λ	1	λ	I	λ	1	λ	1
-90.0	3.547	-58.5	11.34	-27.0	209.5	4.5	626.0	36.0	40.96	67.5	8.287
-88.5	3.570	-57.0	11.84	-25.5	262.7	6.0	615.6	37.5	34.08	69.0	7.805
-87.0	3.683	-55.5	12.36	-24.0	320.7	7.5	602.9	39.0	29.20	70.5	7.309
-85.5	3.773	-54.0	12.96	-22.5	376.3	9.0	589.6	40.5	25.37	72.0	6.835
-84.0	3.909	-52.5	13.62	-21.0	427.5	10.5	578.1	42.0	22.47	73.5	6.361
-82.5	4.115	-51.0	14.41	-19.5	470.4	12.0	567.2	43.5	20.23	75.0	5.917
-81.0	4.422	-49.5	15.24	-18.0	504.4	13.5	555.9	45.0	18.46	76.5	5.502
-79.5	4.828	-48.0	16.18	-16.5	527.2	15.0	541.2	46.5	17.02	78.0	5.113
-78.0	5.218	-46.5	17.33	-15.0	543.4	16.5	522.1	48.0	15.88	79.5	4.709
-76.5	5.648	-45.0	18.82	-13.5	556.2	18.0	497.1	49.5	14.97	81.0	4.361
-75.0	6.112	-43.5	20.75	-12.0	568.0	19.5	460.7	51.0	14.15	82.5	4.096
-73.5	6.558	-42.0	23.08	-10.5	582.0	21.0	417.3	52.5	13.40	84.0	3.903
-72.0	7.064	-40.5	26.14	-9.0	597.0	22.5	363.8	54.0	12.72	85.5	3.746
-70.5	7.562	-39.0	30.24	-7.5	612.7	24.0	302.5	55.5	12.11	87.0	3.581
-69.0	8.120	-37.5	35.52	-6.0	626.1	25.5	247.1	57.0	11.58	88.5	3.485
-67.5	8.533	-36.0	42.78	-4.5	635.8	27.0	195.7	58.5	11.11	90.0	3.491
-66.0	8.999	-34.5	54.12	-3.0	641.7	28.5	151.1	60.0	10.65		L. L.
-64.5	9.488	-33.0	69.35	-1.5	645.5	30.0	115.0	61.5	10.21		
-63.0	9.975	-31.5	92.42	0.0	645.4	31.5	85.86	63.0	9.714		
-61.5	10.39	-30.0	123.7	1.5	641.3	33.0	65.28	64.5	9.262		
-60.0	10.88	-28.5	163.8	3.0	634.6	34.5	50.98	66.0	8.777		

Electricity Parameter:

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

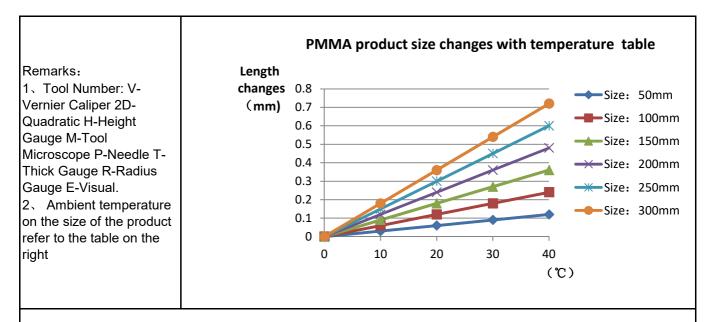
Optical Parameter (Distance=2.410m):

Equivalent Luminous	flux: Φ eff= 412.31m	Efficiency: Eff=126.88lm/W
Diffuse angle:	@(25%): 56.6deg@(50%)	: 47.3deg@(75%): 37.4deg@(50%): 47.3deg
Diffuse angle:	@(25%): 56.6deg@(50%)	: 47.3deg @ (75%): 37.4deg @ (50%): 47.3deg
Imax=645.8cd (C=0.0	deg,G=-0.5deg)	CO-180Plane Imax= 645.8cd(G=-0.5deg)
		CO-180Plane IO = 645.4cd

Sample parameter test HK Dark 45@21-15° lens



			Standard size	Upper Size limit	Lower size limi	Test t result1	Test result2	Test result3	Test result4	Jud gme nt	Remarks
	diam	eter	45			44. 97	44.94	44.99	99 45.02		Test environment
1.Size	hei	ght	20.9			20.905	20. 905	20. 925	20.94	$\left \right $: In 20 ℃ - 25 ℃ environment to achieve thermal
thickno s			2			2. 11	2. 11	2.2	2. 21		equilibrium after the test.
		Gate shear can not affect the appearance of the lamp									
	See attachment "Appearance Inspection Standards"										
2.Appeara	nce		See achment pearance	Е		No burr	No burr	No burr	No burr		ОК
Quality		Ins	spection andards"			No stains	No stains	No stains	No sta	ins	ÖK
3.Material				PMMA Color Transparent							ОК
	Tes	sting L	.ED	D6							
	she	ould c	onform to t According t	the parame o the heat o	ters in the	hitting surfac product bas capability c be fully test	sic informat of the lamp	tion table. if and the act	it is requir ual conditi	ed to ons of	be out of
4.Optical index	F	WHN	A See	light distrib	ution curv	е					
		angle				12.4°	12.6°	12.3°	12.2°		
	K-value (CD/LM					12.70	11.9	13.2	13.2		
	Ef	ficien	су			\square			\searrow		
	ŀ	acula	a			See the	e signature	sample			
Comprehe	ensive	judgi	ment				Qualified				



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.

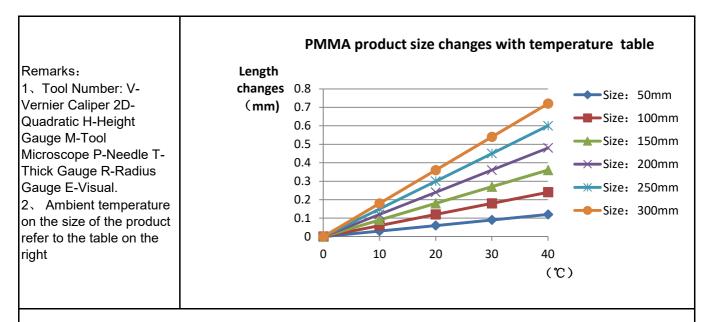
3. The lens surface is contaminated. Only use a soft cotton cloth dipped in analytically pure neutral solvent to wipe gently. Do not wipe with industrial solvents (alcohol, isopropanol, acetone, ether, toluene, xylene, carbon tetrachloride, MMA Body, etc.).

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.

Sample parameter test HK Dark 45@21-24° lens



			Standard size	Upper Size limit	Lower size limit	rocu		Test resu lt3							Remarks
	diam	eter	45			44.9	44.9	44.9	44.9	44.9	44.9	44.9	44.9	\backslash	Test environment
1.Size	hei	ght	20.9			20.9	20.8	20.8	20.8	20.9	20.8	20.9	20.8	\backslash	: In 20 ℃ - 25 ℃ environment to achieve thermal
	thicknes s		2			1.99	2	2	2	1.96	2	2	2	\backslash	equilibrium after the test.
				Gate shear can not affect the appearance of the lamp											
				See attachment "Appearance Inspection Standards"											
2.Appeara	2.Appearance					No bu	rr	No	No burr		burr	1	No bu	rr	OK
Quality		Ins	pearance spection andards"	E		No stains		No s	tains	No s	tains	N	o stai	ns	ÖK
3.Material				PMMA Color Transparent								ОК			
	Tes	sting L	.ED					Ľ	06						
	she	ould c	onform to According f	power of th the parame to the heat o nent, the le	ters in the	produ capal	ict bas pility c	sic inf of the	ormat lamp	ion ta and th	ible. if ne act	it is r ual co	equir onditio	ed to ons of	be out of
4.Optical index	F	WHM	1 See	light distrib	ution curve	e									
		angle				22.	8°	23.	1°	22.	6°	22.	9°		
	K-val	ue (Cl	D/LM			5.	40	5.	. 3	5.	. 6	5	. 5		
	Ef	ficien	су					\langle		\langle				/	
	ł	acula	a			S	ee the	e sign	ature	samp	le				
Comprehe	ensive	judgr	ment					Qua	lified						



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.

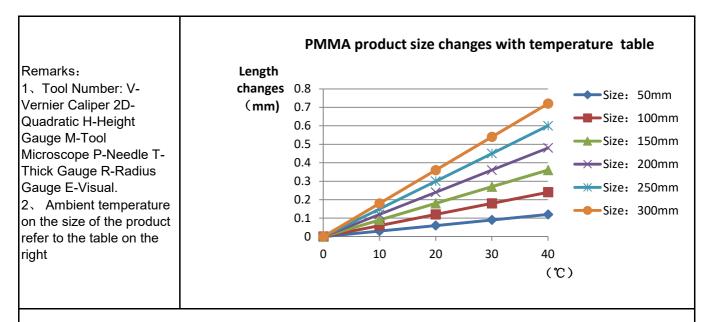
3. The lens surface is contaminated. Only use a soft cotton cloth dipped in analytically pure neutral solvent to wipe gently. Do not wipe with industrial solvents (alcohol, isopropanol, acetone, ether, toluene, xylene, carbon tetrachloride, MMA Body, etc.).

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.

Sample parameter test HK Dark 45@21-36° lens



			Standaro size	I Upper Size limit	Lower size limit	ragu					Test resu It6	resu		Jud gme nt	Remarks
	diam	eter	45			44.9	44.9	44.9	45	44.9	44.9	44.9	44.9	\backslash	Test environment
1.Size	hei	ght	20.9			21	21	21	21	21	21	21	20.9	\backslash	: In 20 ℃ - 25 ℃ environment to achieve thermal
		knes s	2			1.92	1.9	1.91	1.95	2	1.88	1.9	2		equilibrium after the test.
				Gate shear can not affect the appearance of the lamp											
			See attachment "Appearance Inspection Standards"												
2.Appeara	2.Appearance			Е			rr	No	burr	No	burr	٢	lo bu	rr	ок
Quality		Ins	pearance spection andards"		٢	lo stai	ns	No s	tains	No s	tains	N	o stai	ns	ÖK
3.Material				PMMA Color Transparent								ОК			
	Tes	sting L	.ED					C	06						
	sho	ould c	onform to According	l power of th the parame to the heat o ment, the le	ters in the	produ capal	ict bas pility c	sic inf of the	ormat lamp	ion ta and th	ible. if ne act	it is r ual co	equiro onditio	ed to ons of	be out of
4.Optical index	F	WHN	1 See	light distrib	ution curve	e									
		angle				34.	6°	33.	7°	35.	2°	34.	1°		
	K-val	ue (C	D/LM			2.	70	2.	. 9	2.	. 7	2.	. 8		
	Ef	ficien	су							\langle		\langle			
	F	acula	a			S	ee the	e sign	ature	samp	ole				
Comprehe	ensive	judgr	ment					Qua	lified						



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.

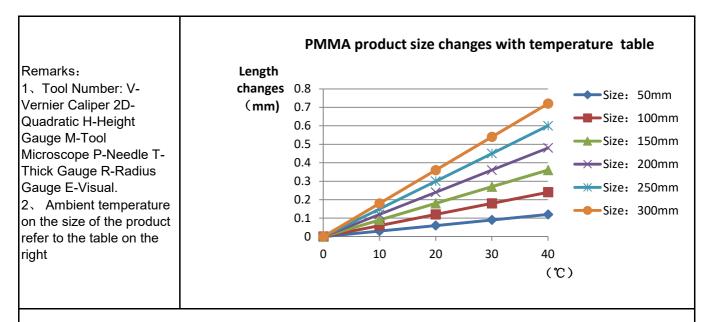
3. The lens surface is contaminated. Only use a soft cotton cloth dipped in analytically pure neutral solvent to wipe gently. Do not wipe with industrial solvents (alcohol, isopropanol, acetone, ether, toluene, xylene, carbon tetrachloride, MMA Body, etc.).

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.

Sample parameter test HK Dark 45@21-50° lens



			Standard size	Upper Size limit	Lower size limi	Test t result1	Test result2	Test result3	Test result4	Jud gme nt	Remarks
	diam	eter	45			44.97	45	44.97	44.97	\backslash	Test environment
1.Size	hei	ght	20.9			20.83	20.74	20.75	20.79	\backslash	: In 20 ℃ - 25 ℃ environment to achieve thermal
	thickne s		2			2. 03	2.04	2.05	2.06		equilibrium after the test.
				Gate sł	near can r	not affect th	e appearanc	ce of the lar	np		
	See attachment "Appearance Inspection Standards"										
2.Appeara	2.Appearance			E		No burr	No burr	No burr	No bu	ırr	ОК
Quality		Ins	pearance spection andards"			No stains	No stains	No stains	No sta	ins	ÖK
3.Material				PMMA Color Transparent							ОК
	Tes	sting L	.ED	D6							
	she	ould c	onform to According	the parame to the heat	eters in the dissipatio	e product ba n capability	ce(LES) of asic informa of the lamp ted and test	tion table. if and the act	it is requir ual conditi	ed to ons of	be out of
4.Optical index	F	WHN	/I See	light distrib	ution curv	e					
		angle				47.3°	47.3°	46.2°	47.5°		
	K-val	ue (C	D/LM				\sum	\sum	\geq		
	Ef	ficien	су								
	ŀ	Facula	a			See t	ne signature	sample			
Comprehe	ensive	judgi	ment	Qualified							



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.

Packaging Information

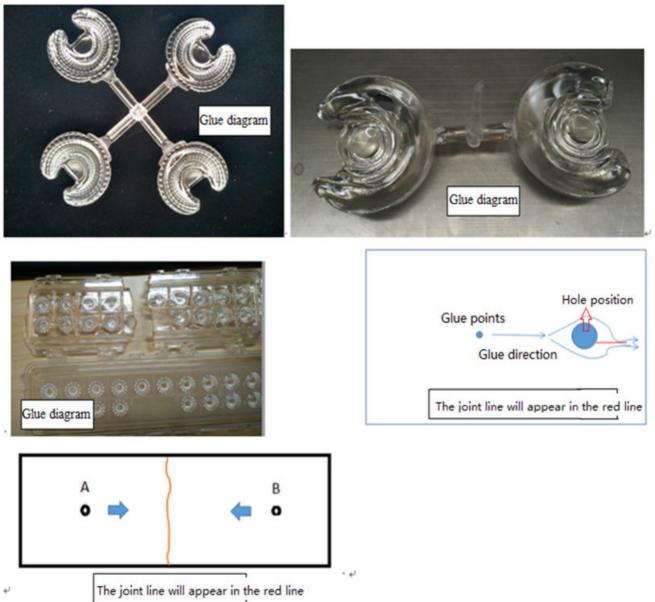


P	N	HK-HG-45@21-15-D6-2	1-1g-1	Product Name	HK Dark 45@	21-15º le	ens
Product	material			PMMA			
Package	diagram	Single Vac	cuum packa	ge Box	apackage	\geq	>
Product	packing	18	A/ Box	4	pcs/Layer		
		11	Layer/Box	792	A/ Carton		
	NO.	Part No	Part name	Size	Dosage	Unit	Remarks
	1	2.07.0066	Blister box	23cm*21cm	44	BAG	
Packagin	2	2.08.0001	PE film	30cm*30cm	44	PCS	
g	3	2.06.0005	Reel label paper	6.2cm*8cm	44	PCS	
Materials	4	2.06.0005	Box label paper	6.2cm*9.2cm	1	PCS	
	5	2.06.0003	big plate	46.8cm*42.8cm	12	PCS	
	6	2.06.0015	big flat carton	48cm*44cm*19cn	ו 1	PCS	
Remarks		The loose packing is not subjec	t to this specif	ication. Customer's	requirements shall	prevail	

Special notice

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

Syntneti



Please note:

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



Appearance inspection standards

1 Operating procedures

1.1.1Sampling standards, sampling plan and AQL

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

2 Code table

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

3 Test conditions

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

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

4 Appearance inspection standards

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

	2: The limited sample refers to the limit of a				
	particular exceptionally developed sample. Limit the sample only for its specific point of exception to confirm; The priority is higher than the other criteria in this table. When there is a limited sample, the limit sample shall prevail.				
Raw edge	Not allowed to affect the size and assembly	Visual, point card		V	
Scratch	1: Non-optical surface and non-exposed surface scratches should be visually insignificant and the length is less than 1/10 of the maximum surface size.	Visual, point card, calipers		V	
Fingerprint	Fingerprints are not allowed on all products	Visual		V	
Foreign objects, black spots, white spots	The product may not be attached to foreign objects, including oil, fiber, dregs of water gap and so on				V
Deformation	Deformation Deformation Exposed surfaces.				√
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		V	
	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		V	
Shrink	When the entire surface of the product shrinks, the optical properties and dimensions must meet the requirements, and the visual will not significantly affect the appearance.Part shrink reference point defects			V	
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		V	
	2: The remaining flow marks shall not appear in the optical surface, a single L \leq 10mm, no more than two				

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



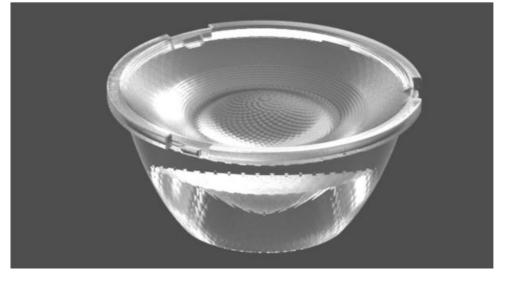
HERCULUX Chengdu HercuLux Photoelectric 恒坤光电 Technology Co.,Ltd Product Approval

Approval number:

Customer:

Manufacturer: Chengdu HercuLux Photoelectric Technology Co.,Ltd

PN	Code	Product
HK-HG-45@21-24-D9-21-1g-1	1.01.02486	HK Dark 45@21-24° lens(D9)
HK-HG-45@21-36-D9-21-1g-1	1.01.02485	HK Dark 45@21-36° lens(D9)
HK-HG-45@21-50-D9-21-1g-1	1.01.02443	HK Dark 45@21-50° lens(D9)



Supplier confirmation			Client confirmation				
Proposed		DATE		Qualified□		5.475	
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, lot industrial park 2 road HercuLux Photoelectric ParkPhone:028-85887727 (801)028-85887990 (801)Fax:028-85887730http://www.herculux.com/Sales Dept:Shenzhen NanshanDistrict Nanshan Cloud Valley Innovation Industrial Park Comprehensive Service Building, 501-TEL:0755-2937 1541FAX:0755-2907 5140

*Approval In duplicate, for both supplier and customer.

Disclaimer



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:

Customized products: The specifications and models of materials used are subject to the agreement between the two parties.

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.

product data:

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.

The measurement data presented in this acknowledgment is a performance test of the product based on our company's internal test conditions and quality requirements, and the reported data is a typical value of the average results of multiple measurements. Therefore, in some cases, the actual product may deviate from the data provided. We reserve the right to notify you in advance of this data.

Product changes and improvements:

Changes and improvements of customized products are subject to the agreement between the two parties in the contract or technical documents.

As the conventional products that we continue to research and improve, our company reserves the right to make technical changes to its products, and reserves the right to make changes to data resulting from improvements without prior notice.

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 monomerm, 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.

第2页



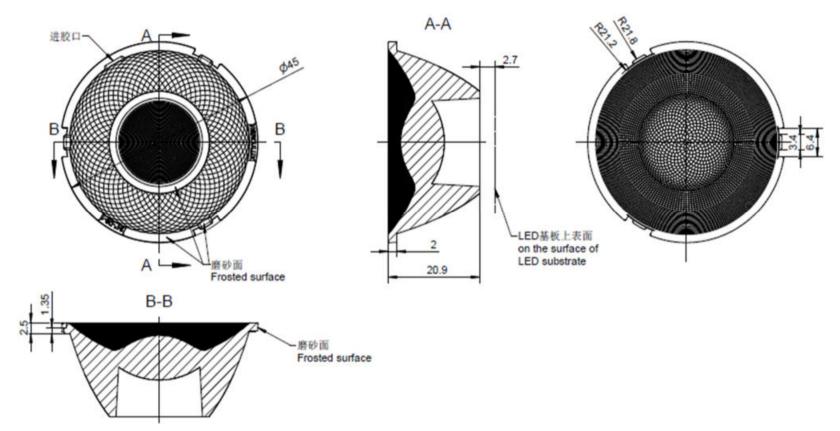
http://www.herculux.com/

Date updated: 2023/5/18

Product Picture:	
Size(L*W*H/Φ*H):	Ф:45mm; H:20.9mm
Material:	ΡΜΜΑ
Effiency:	λ
Temperature(Topr):	Material extreme temperature resistance: -40°C to +100°C long-term use temperature: -40°C to +80°C
FWHM:	24°、36°、50°
Matched LES:	D9
Recommended MAX power:	Not more than 20W

2D drawing



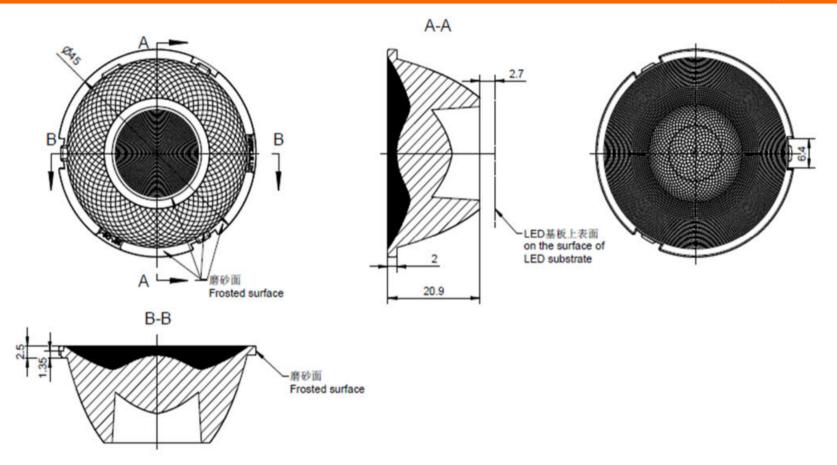


Technical remark:

	. The 3D map is not indicated for rounded corners and draft angle.												HK-HG-45@21-24-D9-21-1g-1				
 The dimensional tolerances are not specified according to GB/T 14486 2008 MT5. The surface has no flash, shrinkage, bubbles and other defects. 								re desigr			HK Dark 45	HK Dark 45@21-24º lens(D9)		1.01.02486			
*4. When th	*4. When the lamp adopts rubber ring for waterproofing: the roughness of the contact						Re	view					mber of o	drawi	qty	weight	
surface betv	surface between the radiator and the rubber ring is required: Ra<3.2 μm					Valio	dation			Material:	PMMA		•	CDHK			
MT5 Tolerance	Basic size	<3	3~10	10~24	24~65	65~140	140~250	250~	450	>450							
	lerance val	±0.1	±0.15	±0.2	±0.35	±0.50	±0.80	±1.	.2	±2.0							

2D drawing



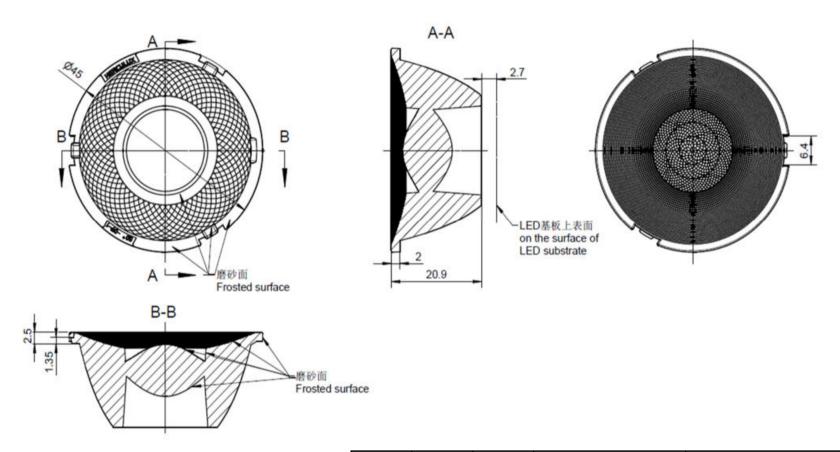


Technical remark:

	1. The 3D map is not indicated for rounded corners and draft angle.												HK-HG-45@21-36-D9-21-1g-1			
 The dimensional tolerances are not specified according to GB/T 14486 2008 MT5. The surface has no flash, shrinkage, bubbles and other defects. 								re desigr			HK Dark 45	@21-36º lens(D9)	1.01.02485			
*4. When th	*4. When the lamp adopts rubber ring for waterproofing: the roughness of the contact							view					mber of drawi	qty	weight	
surface betw	surface between the radiator and the rubber ring is required: Ra<3.2 μm					Valio	dation			Material:	PMMA		CDHK			
MT5 Tolerance	Basic size	<3	3~10	10~24	24~65	65~140	140~250	250~45	50 >	450	-		•			
	lerance val	±0.1	±0.15	±0.2	±0.35	±0.50	±0.80	±1.2	±2	2.0						

2D drawing





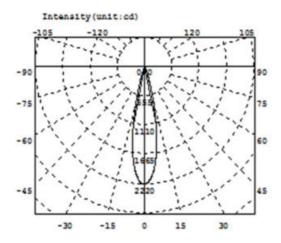
Technical remark:

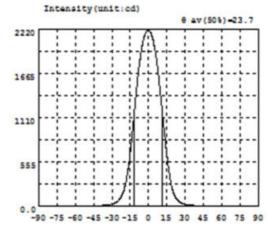
	I. The 3D map is not indicated for rounded corners and draft angle.												HK Dark 45@21-50º lens(D9)			HK-HG-45@21-50-D9-21-1g-1			
 The dimensional tolerances are not specified according to GB/T 14486 2008 MT5. The surface has no flash, shrinkage, bubbles and other defects. 								ıre desigr				HK Dark 45				1.01.02443			
*4. When th	*4. When the lamp adopts rubber ring for waterproofing: the roughness of the contact							eview				_		mber of	f drawi	qty	weight		
surface betw	surface between the radiator and the rubber ring is required: Ra<3.2 μm						Val	dation				Material:	СДНК						
MT5 Tolerance	Basic size	<3	3~10	10~24	24~65	65~140	140~250	250~	~450	>45	50	-							
	lerance val	±0.1	±0.15	±0.2	±0.35	±0.50	±0.80	±1.	.2	±2.0	0								

IES——









Intensity data: (deg , cd) CO-180

λ	I	λ	I	λ	1	λ	1	λ	I	λ	1
-90.0	0.8700	-58.5	6.213	-27.0	48.37	4.5	2021	36.0	14.77	67.5	2.900
-88.5	0.8135	-57.0	6.530	-25.5	63.17	6.0	1887	37.5	13.15	69.0	2.393
-87.0	0.7580	-55.5	6.846	-24.0	85.34	7.5	1716	39.0	11.92	70.5	1.938
-85.5	0.7364	-54.0	7.164	-22.5	119.5	9.0	1511	40.5	11.00	72.0	1.651
-84.0	0.7371	-52.5	7.493	-21.0	170.4	10.5	1289	42.0	10.25	73.5	1.390
-82.5	0.7977	-51.0	7.813	-19.5	245.1	12.0	1056	43.5	9.682	75.0	1.168
-81.0	0.8946	-49.5	8.141	-18.0	352.0	13.5	829.1	45.0	9.224	76.5	1.003
-79.5	1.040	-48.0	8.483	-16.5	500.2	15.0	626.9	46.5	8.680	78.0	0.8575
-78.0	1.230	-46.5	8.879	-15.0	682.9	16.5	456.9	48.0	8.239	79.5	0.7932
-76.5	1.472	-45.0	9.319	-13.5	897.8	18.0	312.7	49.5	7.866	81.0	0.7683
-75.0	1.916	-43.5	9.860	-12.0	1132	19.5	213.0	51.0	7.490	82.5	0.7524
-73.5	2.326	-42.0	10.56	-10.5	1370	21.0	147.8	52.5	7.250	84.0	0.8034
-72.0	2.630	-40.5	11.48	-9.0	1592	22.5	104.7	54.0	6.943	85.5	0.8578
-70.5	3.081	-39.0	12.63	-7.5	1786	24.0	75.74	55.5	6.596	87.0	0.8950
-69.0	3.481	-37.5	14.12	-6.0	1946	25.5	56.26	57.0	6.189	88.5	0.9092
-67.5	3.909	-36.0	15.98	-4.5	2069	27.0	43.15	58.5	5.765	90.0	0.9650
-66.0	4.344	-34.5	18.38	-3.0	2152	28.5	34.27	60.0	5.315		
-64.5	4.778	-33.0	21.64	-1.5	2199	30.0	27.67	61.5	4.836		
-63.0	5.169	-31.5	25.58	0.0	2210	31.5	23.02	63.0	4.362		
-61.5	5.655	-30.0	30.86	1.5	2182	33.0	19.50	64.5	3.878		
-60.0	5.893	-28.5	38.23	3.0	2118	34.5	16.73	66.0	3.392		

Electricity Parameter:

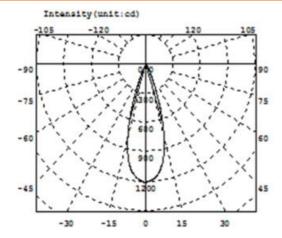
Current	I:	0.1000A	Power:	1.628W
Voltage	V:	16.29V	PF :	1.000

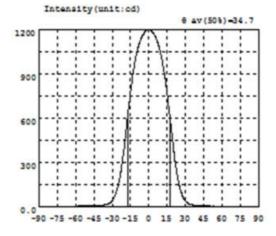
Optical Parameter (Distance=2.410m):

Equivalent Luminous flux: \$ eff= 420.41m Efficiency: Eff=258.251m/W Diffuse angle: \$ (25%): 31.6deg \$ (50%): 23.7deg \$ (75%): 16.4deg \$ (50%): 23.7deg Diffuse angle: \$ (25%): 31.6deg \$ (50%): 23.7deg \$ (75%): 16.4deg \$ (50%): 23.7deg Imax=2211cd (C=0.0deg,G=-0.5deg) C0-180Plane Imax= 2211cd (G=-0.5deg) C0-180Plane I0= 2210cd IES—— HK Dark 45@21-36° lens(D9)









Intensity data: (deg , cd) CO-180

λ	1	λ	1	λ	I	λ	1	λ	1	λ	1
-90.0	1.005	-58.5	7.278	-27.0	95.60	4.5	1163	36.0	14.89	67.5	3.289
-88.5	0.9259	-57.0	7.524	-25.5	138.0	6.0	1138	37.5	13.15	69.0	2.791
-87.0	0.8803	-55.5	7.688	-24.0	191.9	7.5	1104	39.0	11.74	70.5	2.286
-85.5	0.8248	-54.0	7.790	-22.5	263.4	9.0	1060	40.5	10.58	72.0	1.840
-84.0	0.7816	-52.5	7.841	-21.0	352.9	10.5	1005	42.0	9.661	73.5	1.684
-82.5	0.8069	-51.0	7.971	-19.5	456.1	12.0	936.7	43.5	8.974	75.0	1.286
-81.0	0.9203	-49.5	8.146	-18.0	564.9	13.5	852.8	45.0	8.472	76.5	1.065
-79.5	1.056	-48.0	8.337	-16.5	675.4	15.0	757.2	46.5	8.113	78.0	0.9104
-78.0	1.282	-46.5	8.590	-15.0	779.7	16.5	652.8	48.0	7.783	79.5	0.8096
-76.5	1.668	-45.0	8.983	-13.5	873.9	18.0	546.4	49.5	7.515	81.0	0.7667
-75.0	2.163	-43.5	9.508	-12.0	955.0	19.5	441.3	51.0	7.367	82.5	0.7827
-73.5	2.638	-42.0	10.27	-10.5	1022	21.0	333.1	52.5	7.313	84.0	0.8072
-72.0	3.126	-40.5	11.27	-9.0	1074	22.5	246.1	54.0	7.252	85.5	0.8944
-70.5	3.630	-39.0	12.49	-7.5	1115	24.0	178.2	55.5	7.103	87.0	0.9376
-69.0	4.132	-37.5	14.00	-6.0	1144	25.5	125.3	57.0	6.833	88.5	0.9758
-67.5	4.649	-36.0	16.16	-4.5	1168	27.0	87.12	58.5	6.446	90.0	1.032
-66.0	5.183	-34.5	19.24	-3.0	1185	28.5	59.35	60.0	5.982		
-64.5	5.700	-33.0	23.71	-1.5	1196	30.0	40.71	61.5	5.457		
-63.0	6.191	-31.5	31.17	0.0	1199	31.5	28.95	63.0	4.849		
-61.5	6.611	-30.0	44.14	1.5	1192	33.0	22.01	64.5	4.345		
-60.0	6.964	-28.5	65.61	3.0	1180	34.5	17.63	66.0	3.811		

Electricity Parameter:

Current I:	0.1000A	Power:	3.470W
Voltage V:	34.70V	PF:	1.000

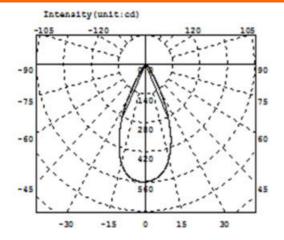
Optical Parameter (Distance=2.410m):

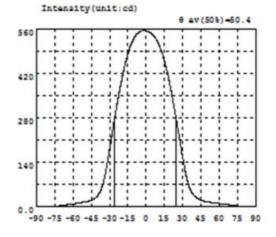
Equivalent Luminous	s flux: 4 eff= 419.21m	Efficiency: Eff=120.831m/W
Diffuse angle:	@(25%): 43.3deg@(50%):	34.7deg @ (75%): 25.7deg @ (50%): 34.7deg
Diffuse angle:	@(25%): 43.3deg @(50%):	34.7deg @ (75%): 25.7deg @ (50%): 34.7deg
Imax=1199cd (C=0.0d	leg,G=0.0deg)	CO-180Plane Imax= 1199cd(G=0.0deg)
		C0-180Plane IO= 1199cd

IES—— HK Dark 45@21-50° lens(D9)









Intensity data: (deg , cd) CO-180

λ	1	λ	1	λ	1	λ	1	λ	1	λ	1
-90.0	0.8022	-58.5	10.71	-27.0	252.8	4.5	544.3	36.0	56.10	67.5	7.115
-88.5	0.7572	-57.0	11.65	-25.5	287.7	6.0	538.7	37.5	44.78	69.0	6.445
-87.0	0.7130	-55.5	12.53	-24.0	320.9	7.5	531.3	39.0	36.80	70.5	5.668
-85.5	0.6971	-54.0	13.42	-22.5	352.5	9.0	521.6	40.5	31.09	72.0	4.917
-84.0	0.6923	-52.5	14.34	-21.0	382.4	10.5	509.6	42.0	26.88	73.5	4.146
-82.5	0.7466	-51.0	15.36	-19.5	410.5	12.0	495.0	43.5	23.66	75.0	3.401
-81.0	0.8607	-49.5	16.49	-18.0	437.2	13.5	477.6	45.0	21.25	76.5	2.828
-79.5	1.130	-48.0	17.80	-16.5	461.3	15.0	457.3	46.5	19.38	78.0	2.347
-78.0	1.458	-46.5	19.42	-15.0	482.2	16.5	434.6	48.0	17.83	79.5	1.797
-76.5	1.868	-45.0	21.46	-13.5	500.1	18.0	409.2	49.5	16.69	81.0	1.357
-75.0	2.221	-43.5	24.16	-12.0	515.3	19.5	382.3	51.0	15.69	82.5	1.007
-73.5	2.763	-42.0	27.78	-10.5	527.8	21.0	353.0	52.5	14.79	84.0	0.8503
-72.0	3.232	-40.5	32.88	-9.0	537.4	22.5	318.8	54.0	13.91	85.5	0.8203
-70.5	3.873	-39.0	40.07	-7.5	544.3	24.0	288.0	55.5	13.06	87.0	0.8036
-69.0	4.635	-37.5	50.54	-6.0	549.2	25.5	255.0	57.0	12.26	88.5	0.7409
-67.5	5.447	-36.0	65.61	-4.5	552.3	27.0	220.9	58.5	11.45	90.0	0.8824
-66.0	6.276	-34.5	86.99	-3.0	554.5	28.5	186.3	60.0	10.68		
-64.5	7.379	-33.0	114.4	-1.5	554.6	30.0	152.4	61.5	9.928		
-63.0	7.992	-31.5	146.8	0.0	553.8	31.5	120.6	63.0	9.205		
-61.5	8.866	-30.0	182.1	1.5	551.7	33.0	93.36	64.5	8.484		
-60.0	9.768	-28.5	216.0	3.0	548.7	34.5	71.91	66.0	7.789		

Electricity Parameter:

Current I:	0.1000A	Power:	3.200W
Voltage V:	32.00V	PF:	1.000

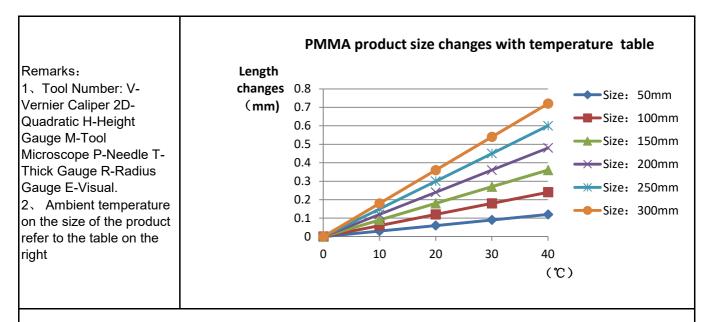
Optical Parameter (Distance=2.410m):

Equivalent Luminous	flux: 4	eff= 398.41m	Efficiency: Eff=124.511m/W
Diffuse angle:	은 (25원) :	62.4deg @ (50%):	50.4deg @ (75%): 36.8deg @ (50%): 50.4deg
Diffuse angle:	은 (25응) :	62.4deg @ (50%):	50.4deg @ (75%): 36.8deg @ (50%): 50.4deg
Imax=554.6cd (C=0.0	deg,G=-1	.5deg)	C0-180Plane Imax= 554.6cd(G=-1.5deg)
			C0-180Plane IO= 553.8cd

Sample parameter test HK Dark 45@21-24° lens(D9)



			Standard size	Upper Size limit	Lower size limit	racu			Test resu lt4			resu			Remarks
	diam	eter	45			44.9	44.9	44.9	44.9	44.9	44.9	44.9	44.9	\backslash	Test environment
1.Size	height		20.9			21	21	21	21	20.8	20.9	20.9	20.8		: In 20 ℃ - 25 ℃ environment to achieve thermal
	thicknes s		2			1.98	2	1.99	2	1.95	1.99	2.01	1.97		equilibrium after the test.
				Gate sh	near can n	ot affe	ct the	appe	aranc	e of t	he lar	np			
				See at	tachment	'Appe	arance	e Insp	ectio	n Star	ndard	s"			
2.Appeara	nce	See attachment "Appearance Inspection Standards"		nce E — on		No bu	rr	No burr		No burr		No burr		rr	ок
Quality						lo stai	ns	s No stains		No stains		No stains			
3.Material				PMMA Color Transparent OF								ОК			
	Tes	sting L	.ED	D9											
	sho	ould c	onform to According	power of th the parame to the heat o nent, the ler	ters in the	produ capal	ct bas pility o	sic inf f the	ormat lamp :	ion ta and th	ible. if ne act	it is r ual co	equiro onditio	ed to l ons of	be out of
4.Optical index	F	WHM	1 See	light distrib	ution curve	9									
		angle				23	3.7	23	5.5	23	5.7	23	8.9		
	K-val	ue (Cl	D/LM			5.	26	5.	35	5.35		5. 43			
	Ef	ficien	су			93.	37%	93.	82%	93.	37%	93.	37%		
	F	acula	a			S	ee the	e sign	ature	samp	le				
Comprehe	ensive	judgr	ment					Qua	lified						



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.

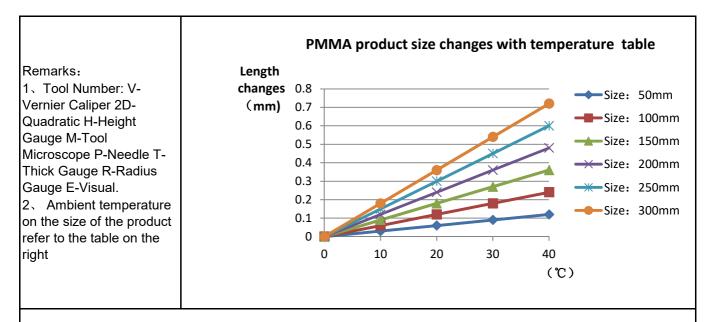
3. The lens surface is contaminated. Only use a soft cotton cloth dipped in analytically pure neutral solvent to wipe gently. Do not wipe with industrial solvents (alcohol, isopropanol, acetone, ether, toluene, xylene, carbon tetrachloride, MMA Body, etc.).

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.

Sample parameter test HK Dark 45@21-36° lens(D9)



			Standard size	Upper Size limit	Lower size limit	racu	Test resu It2					resu		Jud gme nt	Remarks
	diameter		45			44.8	44.7	45	44.7	45	45	45	45	\backslash	Test environment
1.Size	hei	ght	20.9			21	21	21	21	21	21	21	21		: In 20 ℃ - 25 ℃ environment to achieve thermal
	thicknes s		2			1.92	2.03	2	2	2	2	2	1.9		equilibrium after the test.
		Gate shear can not affect the appearance of the lamp													
				See attachment "Appearance Inspection Standards"											
2.Appeara	nce	See attachme "Appearan Inspectio Standard		nce E		No bu	rr	No burr		No burr		٢	No burr		ок
Quality						No stai	o stains No		lo stains No s		No stains No		lo stains		Öl
3.Material				PMMA Color Transparent OK								ОК			
	Tes	sting L	ED	D9											
	sho	ould c	onform to According	power of th the parame to the heat o nent, the lea	eters in the	e produ n capal	ict bas bility c	sic inf of the	ormat lamp	tion ta and th	ible. if ne act	it is r ual co	equiro onditio	ed to lons of	be out of
4.Optical index	F	WHM	1 See	light distrib	ution curv	е									
		angle				34	1. 7	34	. 9	34	. 6	34	. 6		
	K-val	ue (Cl	D/LM			2.	86	2.	84	2.	88	2. 89			
	Ef	ficien	cy			93.	55%	93.	55%	92.	43%	92.	21%		
	F	acula	a 🗌	See the signature sample											
Comprehe	ensive	judgr	ment					Qua	lified						



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.

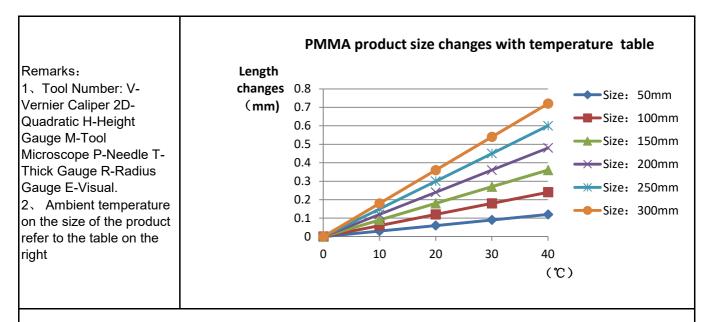
3. The lens surface is contaminated. Only use a soft cotton cloth dipped in analytically pure neutral solvent to wipe gently. Do not wipe with industrial solvents (alcohol, isopropanol, acetone, ether, toluene, xylene, carbon tetrachloride, MMA Body, etc.).

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.

Sample parameter test HK Dark 45@21-50° lens(D9)



			Standard size	Upper Size limit	Lowe size lin		Test result1	Test result2	Test result3	Test result4	Jud gme nt	Remarks	
	diameter		45				44.89	44.89	44.87	44.87	\backslash	Test environment	
1.Size	height		20.9				20.82	20.81	20.74	20.76	$\left \right $: In 20 ℃ - 25 ℃ environment to achieve thermal	
	thicknes s		2				1.99	2.05	2.06	2.05	$\left \right $	equilibrium after the test.	
		Gate shear can not affect the appearance of the lamp											
				See at	tachmer	nt "/	Appearance	e Inspectior	n Standards	6"			
2.Appeara	See attachme			ince E —		Ν	lo burr No burr		No burr	No burr		ОК	
Quality		Inspection Standards'				N	o stains	No stains	No stains	No stains			
3.Material				PMMA Color Transparent OK								ОК	
	Tes	sting L	.ED	D9									
	sho	ould c	onform to According t	power of th the parame o the heat o nent, the le	eters in tl dissipati	he j on (product bas capability o	sic informat of the lamp a	ion table. if and the act	it is requir ual conditi	ed to ons of	be out of	
4.Optical index	F	WHN	A See	light distrib	ution cu	rve							
		angle					50.4	50.2	51	49.5			
	K-val	ue (C	D/LM										
	Ef	ficien	су				88.34%	88.69%	88.00%	88.47%			
	Facula				See the signature sample								
Comprehe	ensive	judgr	ment					Qualified					



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.

Packaging Information

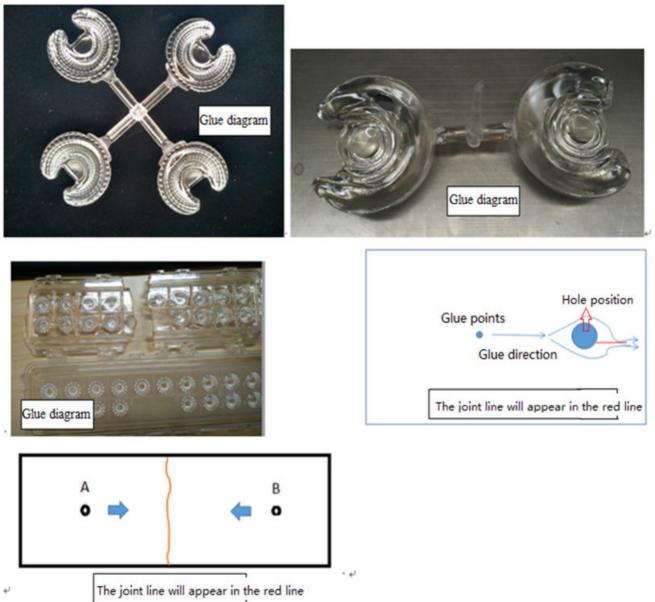


P	N	HK-HG-45@21-24-D9-2	1-1g-1	Product Name	HK Dark 45@21	-24º len	s(D9)				
Product	material	PMMA									
Package	diagram	Single Vac	cuum packa	ge Bo	ox package	\geq	>				
Product	packing	18	A/ Box	4	pcs/Layer						
		11	Layer/Box	792	A/ Carton						
	NO.	Part No	Part name	Size	Dosage	Unit	Remarks				
	1	2.07.0066	Blister box	23cm*21cm	44	BAG					
Packagin	2	2.08.0001	PE film	30cm*30cm	44	PCS					
g Materials	3	2.06.0005	Reel label paper	6.2cm*8cm	44	PCS					
watenais	4	2.06.0005	Box label paper	6.2cm*9.2cm	1	PCS					
	5	2.06.0003	big plate	46.8cm*42.8cm	ו 12	PCS					
	6	2.06.0015	big flat carton	48cm*44cm*19c	m 1	PCS					
Remarks		The loose packing is not subjec	t to this specif	ication. Customer's	s requirements shall p	orevail					

Special notice

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

Syntneti



Please note:

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



Appearance inspection standards

1 Operating procedures

1.1.1Sampling standards, sampling plan and AQL

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

2 Code table

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

3 Test conditions

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

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

4 Appearance inspection standards

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

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

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