Technical Documentation

MODEL : KPC-150HC

RATED POWER : 150 W

TYPE : LED Floodlight (Circular)

INSTALLATION : Indoor & Outdoor

MAKER : KPC Inc.

COUNTRY : Republic of Korea

September 1, 2026

Korea Power Challenge Inc.

Specifications for 150 W LED Floodlight

1. Overview

1.1 Scope

This specification applies to LED floodlight luminaires that use LEDs (Light Emitting Diodes) as the light source. It covers the circular LED floodlight KPC-150HC, which uses a heat-dissipation structure in which aluminum heat-sink fins, cut in the circumferential and radial directions and tilted, are bonded to the aluminum heat-transfer plate on the rear of the LED module, so that the number of stacked fins can be varied according to the light output. The luminaire is intended for large indoor and outdoor spaces requiring high illuminance, such as industrial facilities, ports and docks, shipyard cranes, sports facilities, factories and warehouses (indoor and outdoor), and landscape lighting.

1.2 Features

1.2.1 The perimeter of each aluminum heat-sink fin attached to the aluminum heat-transfer plate on the rear of the LED module is cut radially, and each blade is then tilted. This increases the heat-dissipation area within the same diameter and promotes air turbulence between the fins during convective cooling.

1.2.2 The heat-sink fins are attached and bonded with a high-performance silicone adhesive.

1.2.3 The fins are stacked in a circular hollow structure with an open center, forming multi-directional natural convection paths: outside air entering from the bottom and rear passes between the fins and is discharged at the outer edge.

1.2.4 The KPC-150HC has an integrated converter (SMPS) structure and can be installed in two configurations: high-bay light and floodlight.

1.2.5 A high-bay light is mainly used for direct downward lighting, so no secondary lens is fitted. A floodlight is mounted on a wall bracket, so a secondary lens can be added to increase the illuminance in the target area.

2. Specifications

2.1 General Specifications

No.	Item Classification No.	Model	Detailed Specifications		
			Rated Power (W)	Dimensions (mm)	Application
1	39111611-26194010	KPC-150HC	150	295 (D) x 188 (H)	High-illuminance floodlighting for large indoor/outdoor spaces

2.2 Quality Criteria

Applied Material	Test Item (Unit)	Maximum Value as Applied		Comparable Specification		Deliverable Specification	
		Value	Basis	Value	Basis	Value	Basis
KPC-150HC	Input power (W)	150	Test report (CTK-2025-03574, CTK)	150 W ±10%	High-Efficiency Energy Equipment certification criteria	141 or more	High-Efficiency Energy Equipment certification criteria

Applied Material	Test Item (Unit)	Maximum Value as Applied		Comparable Specification		Deliverable Specification	
		Value	Basis	Value	Basis	Value	Basis
	Input current (A)	0.68	Test report (CTK-2025-03574, CTK)	0.68 ±10%	High-Efficiency Energy Equipment certification criteria	0.677	High-Efficiency Energy Equipment certification criteria
	Luminous efficacy (lm/W)	115	Test report (CTK-2025-03574, CTK)	115 or more	High-Efficiency Energy Equipment certification criteria	115.5	High-Efficiency Energy Equipment certification criteria
	Correlated color temperature (K)	5891	Test report (CTK-2025-03574, CTK)	5,665 ±355	High-Efficiency Energy Equipment certification criteria	5,665 ±355	High-Efficiency Energy Equipment certification criteria
	Color rendering index	79.2	Test report (CTK-2025-03574, CTK)	75 or more	High-Efficiency Energy Equipment certification criteria	75 or more	High-Efficiency Energy Equipment certification criteria
	Power factor	0.98	Test report (CTK-2025-03574, CTK)	0.9 or more	High-Efficiency Energy Equipment certification criteria	0.95 or more	High-Efficiency Energy Equipment certification criteria
	Harmonic current (%)	7.335	Test report (CTK-2025-03574, CTK)	27 or less	KS C 9610-3-2	7.335	High-Efficiency Energy Equipment certification criteria
	Luminaire EMC	Pass	Conformity Registration Certificate (R-R-KPC7-KPC-150HC)	Pass	Radio Waves Act	Pass	Radio Waves Act
	Converter safety certification	Pass	KC Certificate (SZ11007-11005)	Pass	KC61341-1 (2022-02) KC61341-2-13 (2022-02)	Pass	KC61341-1 (2022-02) KC61341-2-13 (2022-02)
	Converter EMC certification	Pass	Registration Certificate (R-R-Mea-HLG-320H-54AB)	Pass	Radio Waves Act	Pass	Radio Waves Act

※ The product shall satisfy all requirements of this specification, including the quality criteria above. For any other matters, it shall meet the test criteria of all quality certifications it holds.

3. Configuration and Materials

[Summary Table]

Model	Materials	Component List
KPC-270N	- Stainless steel - Aluminum - Polycarbonate (PC) - PMMA	① LED chip (LED package) ② PCB ③ LED lens ④ Tilted AL heat-sink fin ⑤ Glass plate ⑥ Glass plate support ⑦ Glass plate retaining ring ⑧ Mounting bracket ⑨ Converter (SMPS) ⑩ Cable

[Main Material Requirements]

No.	Model	Dimensions (mm)	Material Requirements					Origin
			Item	Model (Part)	Spec / Material	Unit	Qty	
1	KPC-270N	258 (D) x 342 (H)	LED chip	SZ5-M3-W0-C8 (3535PKG)	VF = 2.95 Vdc (Max) (IF = 1,500 mA (Max)), 5,700 K, LM80 3.5 mm (L) x 3.5 mm (W)	EA	60	China
			PCB	-	Φ193 mm x 1.6 mm (t) Aluminum (5051)	EA	1	Korea
			LED lens	EXSCD	Φ14.38 x 6.21 mm (H) PMMA+PC	EA	60	Korea
			Tilted AL heat-sink fin	-	Φ295 x 139 x 0.5 mm (t) Aluminum (1050)	EA	24	Korea
			Glass plate	-	Ø185 x 4 (t) mm Tempered glass	EA	1	Korea
			Glass plate support	-	Ø212 x 20 (H) mm PC	EA	1	Korea
			Glass plate retaining ring	-	Ø212 x 30 (H) x 2 (t) mm Aluminum (1050) / Painted	EA	1	Korea
			Mounting bracket	-	215 (W) x 150 (H) x 4 mm (t) Stainless steel / Painted	1	1	Korea
			Converter	HLG-185H-36A	100-240 V, 50/60 Hz, 2.0-0.85 A [Output: DC 36 V, 5.2 A, 187.2 W] 230 (L) x 66 (W) x 40 mm (H) Aluminum (internal potting)	EA	1	Taiwan
			Cable	VCTF	2.5 mm² x 2C 300/500 V	m	5	Korea

4. Form

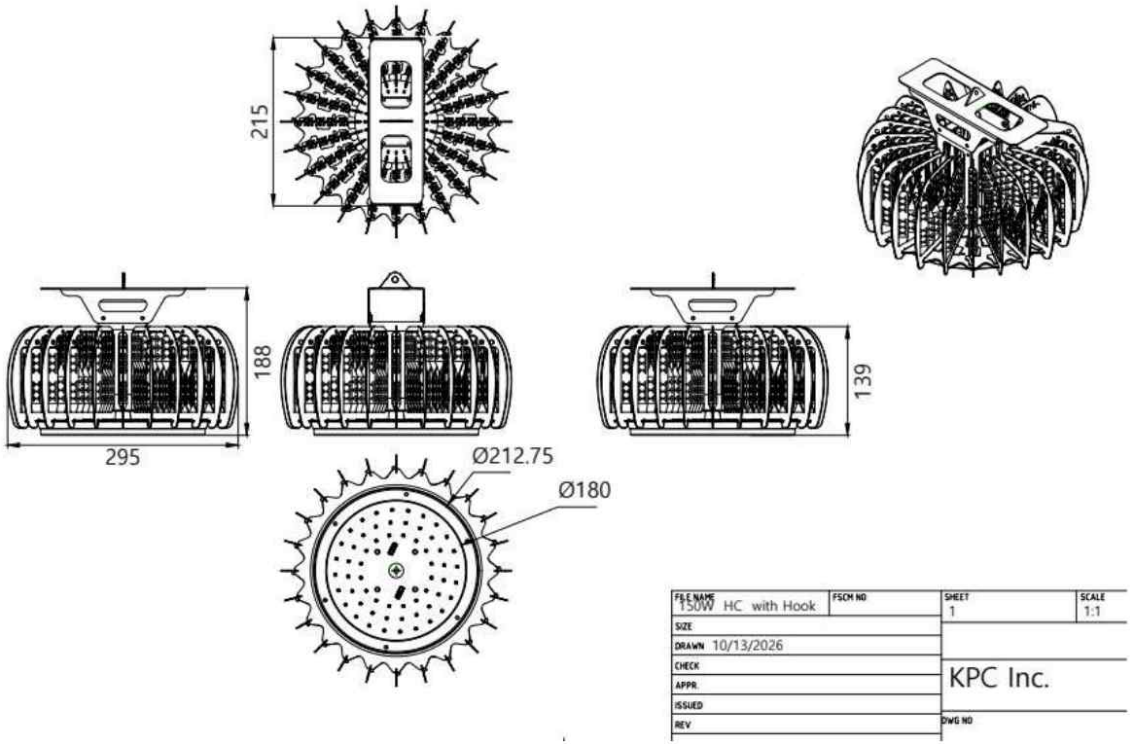
4.1 Overall Photos

KPC-160HC





4.2 Product Structure



4.2.1 Tilted AL Heat-Sink Fin Structure

Heat-sink fins, made by cutting the perimeter of an aluminum disc radially and tilting each blade, are fixed with silicone adhesive at their positions in the radial array. Because the fins are fixed directly to the rear of the PCB, additional processes and costs are saved.

4.2.2 Circular Hollow Stacked Structure

The center of the fins is left open to form a cylindrical air passage, so that outside air enters from the bottom and rear, passes between the fins and is discharged at the outer edge.

4.2.3 Adaptation to Mounting Type

A bracket is installed at the rear end of the fins, forming a structure that can be converted to either the high-bay or the floodlight configuration for easy installation. The converter is integrated so that the luminaire can operate for long periods even when installed outdoors.

4.3 Finish and Appearance

4.3.1 All parts of the luminaire shall be free of scratches, deformation, cracks, dents and similar defects, and shall have a good finish.

4.3.2 The cut surfaces and tilted portions of the fins shall be deburred so that no sharp edges remain, and the stacking spacing shall be uniform.

4.3.3 The heat-sink fins shall be firmly attached to the rear of the PCB.

4.3.4 The transparent plate and lenses shall be free of optical defects such as bubbles, scratches and foreign matter.

4.3.5 The housing and other parts shall be surface-treated, and any painting shall be uniform, without stains or peeling.

5. Manufacturing and Processing

5.1 Processing and assembly of the luminaire shall conform to the approved drawings.

5.2 The heat-sink fins are made by press-tilting aluminum sheet. No separate dies are used for different power outputs.

5.3 The heat-sink fins are firmly attached to the rear of the PCB with silicone adhesive, and adhesion is checked after a set curing time. No welding is used.

5.4 The converter shall be firmly fixed and, after it is connected to the PCB, the cable gland shall be tightened firmly to prevent water ingress. The assembly shall then be supported by the bracket.

5.5 The LED module is made by SMT-mounting LED chips that have an LM-80 test report onto the PCB, and is assembled in close contact with the heat-transfer plate.

5.6 After wiring, lighting, insulation resistance and dielectric strength tests are carried out.

<Manufacturing QC Process Chart>

Process	Symbol	Operation	Control Type		Inspection / Control Items	Quality Standard	Inspection / Control Method
			Insp.	Ctrl.			
Material receiving	▽	Material receiving		○	Quantity check	Shall match the delivery statement	On receipt
Incoming inspection	◇	Incoming inspection	○		1. PCB	Per I-005 (Material and Incoming Inspection Standard)	Attribute sampling inspection and management of supplier test reports
			○		2. Lens	Per I-010 (Material and Incoming Inspection Standard)	
			○		3. LED chip	Per I-001 (Material and Incoming Inspection Standard)	
			○		4. Converter	Per I-009 (Material and Incoming Inspection Standard)	
			○		5. LED PCB	Per I-005 (Material and Incoming Inspection Standard)	
			○		6. Housing (integral: heat-transfer plate, heat pipe, tilted AL heat-sink fin, hexagonal perforated case, glass plate, glass plate support, glass plate retaining ring)	Per I-011 (Material and Incoming Inspection Standard)	
			○		7. Support bracket	Per I-012 (Material and Incoming Inspection Standard)	
Part assembly	◇	In-process inspection	○		1. Appearance 2. Assembly condition 3. Dimensions 4. Short circuit	Per W-006 (Work Standard) and TK-001 (In-process Inspection Standard)	100% inspection
Lighting test	◇	In-process inspection	○		1. Lights on or not 2. Product output adjustment	Per W-006 (Work Standard) and TK-001 (In-process Inspection Standard)	100% inspection
Product inspection	◇	Product inspection	○		1. Appearance 2. Dielectric strength, insulation resistance and leakage current tests 3. Markings	Per PK-001 (Product Inspection Standard)	100% inspection
Aging	◇	Product inspection	○		1. Lights on or not 2. Product output	Per W-008 (Work Standard)	100% inspection
Packing / Shipping	▽	-		○	-	Per Common-008 (Shipping Control Regulation)	-

6. Function and Performance

6.1 Performance and Test Methods

The product shall meet the test methods and quality criteria of KC safety certification, electromagnetic compatibility certification, High-Efficiency Energy Equipment certification, KS C 7712 and the company specification.

Applied Material	Test Item (Unit)	Test Result	Quality Criterion	Test Method
Finished product (KPC-270N)	Luminous efficacy (lm/W)	115.5	115 or more	High-Efficiency Energy Equipment certification test method
	Power factor (%)	0.95	0.95 or more	KS C 7712
	Correlated color temperature (K)	5,891	5,665 ±355 K	High-Efficiency Energy Equipment certification test method
	Color rendering (CRI)	79.2	75 or more	High-Efficiency Energy Equipment certification test method
	Electromagnetic compatibility	Pass	Pass	Radio Waves Act EMC criteria
	Insulation resistance	500 MΩ	2 MΩ or more	KS C IEC 60598-2-5, 5.14
	Dielectric strength	Withstood	Withstand AC 1440 V for 1 minute	KS C IEC 60598-2-5, 5.14
	Leakage current	1.2 mA	3.5 mA or less	KS C IEC 60598-1, 10.3
	Max. heat-sink temperature (℃)	45 ℃	50 ℃ or less	Per 6.2.1

※ The product shall satisfy all requirements of this specification, including the quality criteria above. For any other matters, it shall meet the test criteria of all quality certifications it holds.

6.2 Heat-Sink Temperature Test

In an indoor environment at an ambient temperature of about 26 ℃, apply the rated voltage and operate the luminaire continuously for 1 hour. Then measure the surface temperature of the hottest zone of the heat-sink fins with a non-contact infrared thermometer.

7. Warranty

7.1 The warranty period of the product is 1 year from the date of delivery and installation.

7.2 Defects arising within the warranty period from errors in the manufacturer's design or manufacturing process shall be repaired or replaced immediately at the manufacturer's expense. Defects caused by user error shall be at the user's expense.

8. Packing and Marking

8.1 Packing

Each luminaire shall be packed in an individual corrugated box with cushioning material to prevent deformation of the heat-sink fins, and the separate converter (SMPS) shall be packed separately and enclosed. To prevent damage and moisture ingress during transport and stacking, the product shall be further wrapped with protective plastic film or similar before delivery to the site.

8.2 Marking

In addition to the markings required by the Electrical Appliances and Consumer Products Safety Control Act, a nameplate shall be attached to the luminaire in an easily visible location, showing the following:

1) Manufacturer's name or its abbreviation

2) Rated voltage (V)

3) Rated current (A)

4) Rated power (W)

5) Rated frequency (Hz)

6) Rated luminous flux (lm)

7) Color temperature (K)

8) Rated life (hours)

9) Power factor

10) Luminous efficacy (lm/W)

11) Beam angle (°)

12) Approval number

13) Earth (ground) symbol

14) IP rating (if obtained)

15) Ta (℃)

16) Where necessary for safety, the location and purpose of connections; where wires are connected, a clearly shown wiring diagram

17) A/S (after-sales service) contact

18) Country of origin

19) KC certification mark

20) High-efficiency certification number

21) EMC registration number

9. Referenced Documents

The following documents are indispensable for the application of this specification. For dated references, only the edition cited applies. For undated references, the latest edition applies.

9.1 KS C 7712 LED floodlight luminaires

9.2 KC 60598-1 Luminaires – Part 1: General requirements

9.3 KC 60598-2-5 Luminaires – Part 2-5: Particular requirements – Floodlights

9.4 KC 61347-2-13 Lamp controlgear – Particular requirements for d.c. or a.c. supplied electronic controlgear for LED modules

9.5 Radio Waves Act electromagnetic compatibility standards (National Radio Research Agency notice)

9.6 Regulation on the Promotion of High-Efficiency Energy Equipment (Ministry of Trade, Industry and Energy notice)

9.7 IES LM-80 Measuring luminous flux maintenance of LED light sources

9.8 Patent No. 10-2907608, "Lighting lamp having horizontal heat-dissipating blades with a PLPP structure corresponding to lamp output" (Korean Intellectual Property Office)