

KR Series

KR6™ LED Specification Downlight – Round 6"

Rev. Date: V15 06/11/2020

Product Description

The KR6™ LED specification downlight features Cree TrueWhite® Technology and delivers beautiful, high-quality light with efficacy up to 76 lumens per watt. Designed for new construction applications, the KR Series is available in a variety of color temperatures, round and square trims with high-quality anodized aluminum reflector finishes, a sloped ceiling adaptor accessory, and a variety of dimming options including Cree Lighting's Sunset Dimming Technology which provides rich, warm light that transitions from 2700K to 1800K as naturally as an incandescent source.

Performance Summary

Utilizes Cree TrueWhite® Technology
Initial Delivered Lumens: 700-5,300 lumens; Delivered lumen output is typical when using a SSGC type reflector
Input Power: 13-87 watts
Emergency Performance: Up to 1,210 Lumens; 10W; Minimum 90 Minutes
CRI: 90
CCT: 2700K, 3000K, 3500K, 4000K, 5000K
Controls: Triac Dimming to 5%, 0/1-10V Dimming to 10%, and Lutron EcoSystem® Dimming to 1%
Limited Warranty: 10 years on KR6™ luminaire/1 year on accessories
Limited Warranty Emergency Back Up (EB) Battery: 1 Year Battery Back Up. Test regularly in accordance with local codes

* See <http://creelighting.com/warranty> for warranty terms

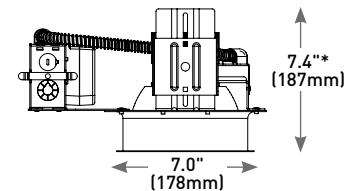
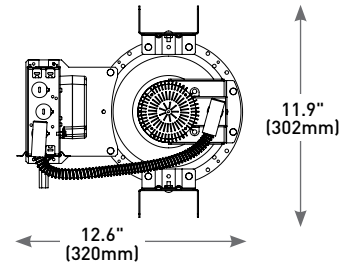
Accessories

Field-Installed		
Sloped Ceiling Adaptor KRKS6**WW ** 0-35 (order in 5 degree increments)	C-Channel Hanger Bars RBH30C - Pair of 30" [762mm] rigid 3/4" x 1/2" [19mm x 13mm] C-Channel bars RBH24C-1 - Pair of 24" [610mm] x 1-1/2" [38mm] x 1/2" [13mm] standard C-Channel bars	T-Bar Clips RARC7 - Set of four - For use with RBH24C-1 hanger bars Beauty Ring KR6TA - White beauty ring to cover pan head fasteners on KR6T reflector

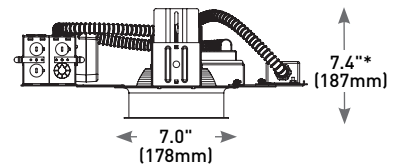
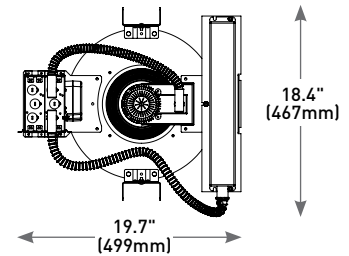
Ordering Information

Fully assembled luminaire is composed of two components that must be ordered separately:
Example: **Housing:** KR6-20L-35K-120V-10V + **Reflector:** KR6T-SSGC-FF

Reflector (Housing must be ordered separately)			
KR6T			
Series	Reflector Finish	Flange Finish	Options
KR6T Standard Trim - Reflector attaches to housing with pan head fasteners and keyhole slots	SSGC Soft Satin Glow, Clear	FF Matches Reflector WF White Paint	WW Wall Wash



Emergency Backup



* Add 1.5" (38mm) for 60L Lumen Package

Housing (Reflector must be ordered separately)									
Series	Size	Reflector	Lumen Package	Optic	CCT	Voltage	Controls	Options	
KR	6 inch	Blank Round	9L 13W, 700 Lumens – 54 LPW 13L 18W, 1,100 Lumens – 61 LPW 20L 30W, 1,700 Lumens – 57 LPW 30L 39W, 2,550 Lumens – 65 LPW 40L 44W, 3,350 Lumens – 76 LPW 60L 87W, 5,300 Lumens – 61 LPW - Available on 120V and 277V only	Blank 70° Beam Angle	27K - 2700K 120V 120 Volts 277V 277 Volts 347V 347 Volts 30K 3000K 35K 3500K 40K 4000K 50K 5000K - Available on 40L and 60L only	120V 120 Volts 277V 277 Volts 347V 347 Volts	Blank - For standard control offering refer to control availability chart on page 4 10V 0/1-10V Dimming - Refer to control availability chart on page 4 LES Lutron EcoSystem® Dimming - Refer to control availability chart on page 4 - Not available with 60L	WD Sunset Dim - 9L and 13L @ 27K with Triac Dimming only EB7 Emergency Backup - Minimum 90 minutes - 120V, 277V only - Minimum operating temperature: 0°C (32°F)	



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Product Specifications

CREE TRUEWHITE® TECHNOLOGY

A revolutionary way to generate high-quality white light, Cree TrueWhite® Technology is a patented approach that delivers an exclusive combination of 90+ CRI, beautiful light characteristics, and lifelong color consistency, all while maintaining high luminous efficacy – a true no compromise solution.

CONSTRUCTION & MATERIAL

- Low brightness parabolic spun Alzak aluminum cone, 0.06" (2mm) thick with polished radius and continuous self-flange
- Soft Satin Glow Clear finish, standard
- 2" (51mm) aperture throat to accommodate all standard and up to 3" (76mm) thick ceilings and provide flexibility in mounting within grid
- Provided with quick mounting brackets for optional carrying channels
- Light engine, optics, and driver accessible from below ceiling

ELECTRICAL SYSTEM

- **Power Factor:** > 0.9 for 120V and 277V
- **Total Harmonic Distortion:** < 20% at full load
- **Input Power:** 120, 277V, or 347V, 50/60Hz
- **Operating Temperature Range:** -18°C - +40°C (0°F - +104°F); minimum operating temperature with EB7 option is 0°C (32°F)
- **10V Source Current:** 9L & 13L: 0.15mA; 20L-40L: 2.2mA; 60L: 0.11mA

CONTROLS

- For standard control offering refer to control availability chart on page 4
- Triac dimming to 5%
- Continuous dimming to 10% with 0-10V DC control protocol
- **10V Source Current:** 9L & 13L: 0.15mA; 20L-40L: 2.2mA
- For use with Class 2 dimming systems only
- Use only lighting controls with neutral connection or controls intended for use with LED fixtures
- Lutron EcoSystem® Dimming to 1%
- Reference <http://creelighting.com/products/indoor/new-construction-downlights/kr-series> for recommended dimming controls and wiring diagrams

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for thru-wiring 8#12AWG-90°C
- Suitable for damp locations
- Designed for indoor use only
- Thermally protected Type NON-IC in accordance with Article 410 of the NEC and UL 1598
- Requires minimum 90°C supply conductors
- Meets FCC Part 15, Subpart B, Class A limits for conducted and radiated emissions
- EnergyStar® certified with the exception of 9L, 13L and 50K CCT. Please refer to <https://www.energystar.gov/productfinder/product/certified-light-fixtures/results> for most current information
- RoHS compliant. Consult factory for additional details
- **CA RESIDENTS WARNING:** Cancer and Reproductive Harm – www.p65warnings.ca.gov

KR Series Ambient Adjusted Lumen Maintenance ¹						
Ambient	Initial Delivered Lumens	Initial LMF	25K hr Reported ² LMF	50K hr Reported ² LMF	75K hr Estimated ³ LMF	100K hr Estimated ³ LMF
5°C (41°F)	9L, 13L	1.04	1.04	1.04	1.04	1.04
	20L	1.04	1.04	1.04	1.04	1.04
	30L	1.04	1.03	1.03	1.03	1.03
	40L, 60L	1.04	1.01	1.00	1.00	1.00
10°C (50°F)	9L, 13L	1.03	1.03	1.03	1.03	1.03
	20L	1.03	1.03	1.03	1.03	1.03
	30L	1.03	1.02	1.02	1.02	1.02
	40L, 60L	1.03	1.00	0.99	0.99	0.99
15°C (59°F)	9L, 13L	1.02	1.02	1.02	1.02	1.02
	20L	1.02	1.02	1.02	1.02	1.02
	30L	1.02	1.01	1.01	1.01	1.01
	40L, 60L	1.02	0.99	0.98	0.98	0.98
20°C (68°F)	9L, 13L	1.01	1.01	1.01	1.01	1.01
	20L	1.01	1.01	1.01	1.01	1.01
	30L	1.01	1.00	1.00	1.00	1.00
	40L, 60L	1.01	0.98	0.97	0.97	0.96
25°C (77°F)	9L, 13L	1.00	1.00	1.00	1.00	1.00
	20L	1.00	1.00	1.00	1.00	1.00
	30L	1.00	0.99	0.99	0.99	0.99
	40L, 60L	1.00	0.96	0.96	0.96	0.95
30°C (86°F)	9L, 13L	0.99	0.99	0.99	0.99	0.99
	20L	0.99	0.98	0.98	0.98	0.98
	30L	0.99	0.98	0.98	0.98	0.98
	40L, 60L	0.99	0.96	0.95	0.95	0.94
35°C (95°F)	9L, 13L	0.98	0.98	0.98	0.98	0.98
	20L	0.98	0.97	0.97	0.97	0.97
	30L	0.98	0.97	0.97	0.97	0.97
	40L, 60L	0.98	0.95	0.94	0.94	0.94

¹ Lumen maintenance values at 25°C (77°F) are calculated per IES TM-21 based on IES LM-80 report data for the LED package and in-situ luminaire testing. Luminaire ambient temperature factors (LATF) have been applied to all lumen maintenance factors.

² In accordance with IES TM-21, Reported values represent interpolated values based on time durations that are up to 6x the tested duration in the IES LM-80 report for the LED.

³ Estimated values are calculated and represent time durations that exceed the 6x test duration of the LED.

Installation

- Recommended ceiling cutout 6.5" (165mm)



Note: 30L and 40L versions require marked spacing: 24" (600mm) x 12" (300mm) x 1/2" (12mm). 24" (600mm) luminaire to luminaire, 12" (300mm) luminaire to side wall, 1/2" (12mm) above luminaire

60L versions require marked spacing: 48" (1219mm) x 24" (600mm) x 1" (25mm). 48" (1219mm) luminaire to luminaire, 24" (600mm) luminaire to side wall, 1" (25mm) above luminaire

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Wall Wash

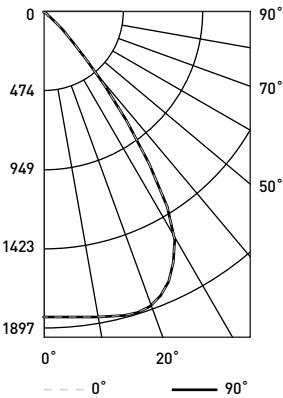
Based on KR6-30L-27K-120V W/KR6T-SSGC-FF-WW Luminaire

Down from Ceiling	2' from Wall				3' from Wall				4' from Wall			
	3' Centers		4' Centers		3' Centers		4' Centers		3' Centers		4' Centers	
	Center Line (FC)	Midpoint (FC)	Center Line (FC)	Midpoint (FC)	Center Line (FC)	Midpoint (FC)	Center Line (FC)	Midpoint (FC)	Center Line (FC)	Midpoint (FC)	Center Line (FC)	Midpoint (FC)
1'	20	20	25	11	10	10	10	7	6	6	5	5
2'	49	40	44	23	27	28	24	19	16	17	13	13
3'	49	44	43	28	29	31	24	22	23	24	18	19
4'	49	51	39	36	30	31	24	23	22	24	18	19
5'	42	44	29	36	34	35	28	27	22	23	18	18
6'	36	36	23	28	34	35	26	28	25	26	20	21
7'	29	30	19	23	31	32	25	26	27	28	22	23
8'	24	25	16	18	27	28	23	23	26	27	21	22
9'	20	22	13	16	24	25	20	20	24	25	20	20
10'	17	18	11	13	20	22	18	18	21	23	18	18

Photometry

KR6-30L-27K-120V W/KR6T-SSGC-FF BASED ON UL REPORT TEST #: 157473

Luminaire photometry has been conducted in accordance with IES LM-79-08. IES LM-79-08 specifies the entire luminaire as the source resulting in a luminaire efficiency of 100%.



UL Test Report #: 157473
 KR6-30L-27K-120V
 w/KR6T-SSGC-FF
 Initial Delivered Lumens: 2,479
 Efficacy: 66 LPW
 S/M: 1.2

Coefficients Of Utilization – Zonal Cavity Method				
RC %:	80			
RW %:	70	50	30	10
RCR: 0	119	119	119	119
1	113	110	108	105
2	107	102	97	94
3	101	94	89	84
4	95	87	81	77
5	90	81	75	70
6	85	75	69	64
7	80	70	64	59
8	76	66	59	55
9	72	61	55	51
10	68	58	51	47

Effective Floor Cavity Reflectance: 20%

Average Luminance Table (cd/m²)				
Vertical Angle	Horizontal Angle			
	0°	45°	90°	
45°	19,317	19,317	19,317	
55°	4,459	4,459	4,459	
65°	2,074	2,074	2,074	
75°	931	931	931	
85°	0	0	0	

Zonal Lumen Summary			
Zone	Lumens	% Lamp	Luminaire
0-30	1,527	N/A	61.5%
0-40	2,206	N/A	88.8%
0-60	2,462	N/A	99.1%
0-90	2,483	N/A	100.0%
0-180	2,483	N/A	100.0%

Cone of Light		
Distance from Workplane	Footcandles	Beam Diameter
6' (1.8m)	51	7.3' (2.2m)
8' (2.4m)	29	9.7' (3.0m)
10' (3.0m)	18	12.3' (3.7m)
12' (3.7m)	13	14.5' (4.4m)
14' (4.3m)	9	17.4' (5.3m)

For exact photometric data, please reference our available IES and LM-79 test results at <http://creelighting.com/products/indoor/new-construction-downlights/kr-series>

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Application Reference

Based on KR6-30L-27K-120V W/KR6T-SSGC-FF Luminaire

Open Space					
Spacing	Lumens	Wattage	LPW	w/ft ²	Average FC
4 x 4	2,550	39	65	2.34	155
6 x 6				1.09	74
8 x 8				0.59	42
10 x 10				0.39	27

10' Ceiling, 80/50/20 Reflectances, 2.5' workplane. LLF: 1.0 Initial. Open Space: 50' x 40' x 10'

Corridor					
Spacing	Lumens	Wattage	LPW	w/ft ²	Average FC
4' on Center	2,550	39	65	1.63	77
6' on Center				1.11	52
8' on Center				0.78	37
10' on Center				0.65	31

10' Ceiling, 80/20/50 Reflectances, Light levels on the ground. LLF: 1.0 Initial. Corridor: 6' Wide x 100' Long

Control Availability Chart

Lumen Package	Non-Dimming			Triac Dimming to 5%			0/1-10V Dimming to 10%		
	120V	277V	347V	120V	277V	347V	120V	277V	347V
9L	N/A	S - Leave control Blank when ordering	N/A	S - Leave control Blank when ordering	N/A	N/A	O - Order w/10V	O - Order w/10V	O - Order w/10V
13L	N/A	S - Leave control Blank when ordering	N/A	S - Leave control Blank when ordering	N/A	N/A	O - Order w/10V	O - Order w/10V	O - Order w/10V
20L	N/A	N/A	N/A	N/A	N/A	N/A	S - Order w/10V	S - Order w/10V	S - Order w/10V
30L	N/A	N/A	N/A	N/A	N/A	N/A	S - Order w/10V	S - Order w/10V	S - Order w/10V
40L	N/A	N/A	N/A	N/A	N/A	N/A	S - Order w/10V	S - Order w/10V	S - Order w/10V
60L	N/A	N/A	N/A	N/A	N/A	N/A	S - Order w/10V	S - Order w/10V	N/A

Control Availability Chart Cont'd.

LES Dimming to 1%			
Lumen Package	120V	277V	347V
9L	N/A	N/A	O-Order w/LES
13L	O-Order w/LES	O-Order w/LES	O-Order w/LES
20L	O-Order w/LES	O-Order w/LES	O-Order w/LES
30L	O-Order w/LES	O-Order w/LES	O-Order w/LES
40L	O-Order w/LES	O-Order w/LES	O-Order w/LES
60L	N/A	N/A	N/A

S = Standard Offering
O = Optional Offering

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