

KR Series

KR6™ LED Specification Downlight – Square 6"

Rev. Date: V11 06/11/2020

Product Description

The KR6™ LED specification downlight features Cree TrueWhite® Technology and delivers beautiful, high-quality light with efficacy up to 72 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, and a variety of dimming options including Cree Lighting's Sunset Dimming Technology which provides rich, warm that transitions from 2700K to 1800K as naturally as an incandescent source.

Performance Summary

Utilizes Cree TrueWhite® Technology

Initial Delivered Lumens: 650-5,000 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%, 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

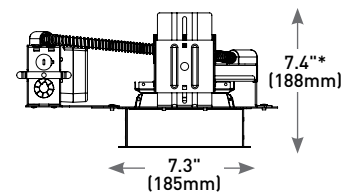
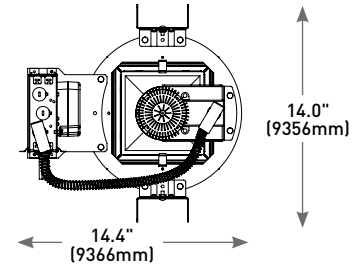
| Field-Installed | |
|---|---|
| C-Channel Hanger Bars RBH30C - Pair of 30" [762mm] rigid 3/4" x 1/2" [19mm x 13mm] C-Channel bars RBH24C-1 - Pair of 24" [610mm] x 1-1/2" [38mm] x 1/2" [13mm] standard C-Channel bars | T-Bar Clips RARC7 - Set of four - For use with RBH24C-1 hanger bars |

Ordering Information

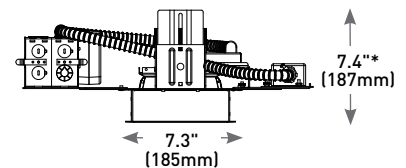
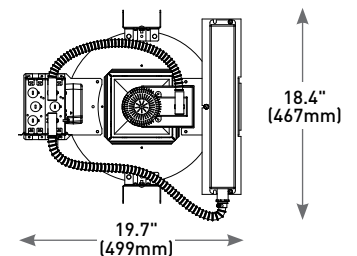
Fully assembled luminaire is composed of two components that must be ordered separately:
 Example: **Housing:** KR6S-20L-35K-120V-10V + **Reflector:** KR6TS-SSGC-FF

| Reflector (Housing must be ordered separately) | | |
|--|-----------------------------|--|
| KR6TS | | |
| Series | Reflector Finish | Flange Finish |
| KR6TS | SSGC Soft Satin Glow, Clear | FF Matches Reflector WF White Paint |

| Housing (Reflector must be ordered separately) | | | | | | | | |
|--|----------------|-------------|--|--------------------------------------|--|---|---|---|
| KR6 | S | | | | | | | |
| Series | Size | Reflector | Lumen Package | Optic | CCT | Voltage | Controls | Options |
| KR | 6 6 inch | S Square | 9L 13W, 650 Lumens – 50 LPW 13L 18W, 1,050 Lumens – 58 LPW 20L 30W, 1,600 Lumens – 53 LPW 30L 39W, 2,550 Lumens – 65 LPW 40L 44W, 3,150 Lumens – 72 LPW 60L 87W, 5,000 Lumens – 57 LPW - Available on 120V and 277V only | Blank 70° Beam Angle | 27K - 2700K - 9L thru 40L only 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) |



Emergency Backup



* Add 1.5" [38mm] for 60L Lumen Package



US: creelighting.com T (800) 236-6800

Canada: creelighting-canada.com T (800) 473-1234

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
- 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 |

¹Lumen 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.

²In 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.

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

Installation

- Recommended ceiling cutout 6.5" x 6.5" (165mm x 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

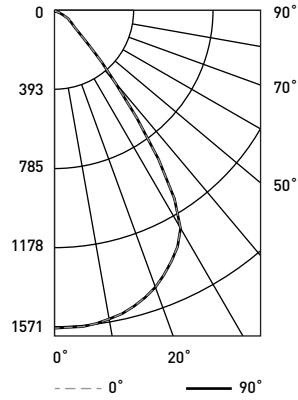
60L versions require marked spacing: 48" (1219mm) x 24" (600mm) x 1" (25mm). 48" (1219mm) luminaire to luminaire, 24" (600mm) luminaire to side wall, 1" (25mm) above luminaire

KR6™ LED Specification Downlight – Square 6"

Photometry

KR6S-30L-35K-120V W/KR6TS-SSGC-FF BASED ON RESTL REPORT TEST #: PL04041-001

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%.



RESTL Test Report #: PL04041-001
 KR6S-30L-35K-120V
 w/KR6TS-SSGC-FF
 Initial Delivered Lumens: 2,293
 Efficacy: 58.0 LPW
 S/M: 1.18

| Coefficients Of Utilization – Zonal Cavity Method | | | | |
|---|-----|-----|-----|-----|
| RC %: | 80 | | | |
| RW %: | 70 | 50 | 30 | 10 |
| RCR: 0 | 119 | 119 | 119 | 119 |
| 1 | 113 | 109 | 106 | 104 |
| 2 | 106 | 100 | 95 | 91 |
| 3 | 99 | 92 | 86 | 81 |
| 4 | 93 | 84 | 78 | 73 |
| 5 | 87 | 78 | 71 | 66 |
| 6 | 82 | 72 | 65 | 60 |
| 7 | 77 | 67 | 60 | 55 |
| 8 | 73 | 62 | 55 | 50 |
| 9 | 69 | 58 | 51 | 46 |
| 10 | 65 | 54 | 47 | 43 |

Effective Floor Cavity Reflectance: 20%

| Average Luminance Table (cd/m²) | | | |
|---------------------------------|------------------|--------|--------|
| Vertical Angle | Horizontal Angle | | |
| | 0° | 45° | 90° |
| 45° | 15,007 | 34,431 | 15,038 |
| 55° | 7,380 | 6,960 | 7,350 |
| 65° | 4,499 | 4,132 | 4,499 |
| 75° | 1,812 | 2,593 | 1,778 |
| 85° | 987 | 1,579 | 1,086 |

| Zonal Lumen Summary | | | |
|---------------------|--------|--------|-----------|
| Zone | Lumens | % Lamp | Luminaire |
| 0-30 | 1,213 | N/A | 52.9% |
| 0-40 | 1,841 | N/A | 80.2% |
| 0-60 | 2,230 | N/A | 97.2% |
| 0-90 | 2,294 | N/A | 100.0% |
| 0-180 | 2,294 | N/A | 100.0% |

| Cone of Light | | |
|-------------------------|-------------|---------------|
| Distance from Workplane | Footcandles | Beam Diameter |
| 6' (1.8m) | 53 | 5.7' (1.7m) |
| 8' (2.4m) | 30 | 7.6' (2.3m) |
| 10' (3.0m) | 19 | 9.6' (2.9m) |
| 12' (3.7m) | 13 | 11.5' (3.5m) |
| 14' (4.3m) | 10 | 13.2' (4.0m) |

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>

Application Reference

Based on KR6S-30L-35K-120V W/KR6TS-SSGC-FF Luminaire

| Open Space | | | | | |
|------------|--------|---------|-----|-------|------------|
| Spacing | Lumens | Wattage | LPW | w/ft² | 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/ft² | Average FC |
| 4' on Center | 2,550 | 39 | 65 | 1.63 | 77 |
| 6' on Center | | | | 1.04 | 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

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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