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Alpheca
Tunnel Lighting Solutions

Alpheca means Efficiency Alpheca means Safety

Technically brilliant, Alpheca is made to keep driver security at the forefront. Designed catering to the specialized lighting requirements of tunnels, Alpheca enables efficient traffic management at any time of the day.

An integral LED luminaire, housing IP lens in a durable die cast Aluminum housing powder coated in a subtle grey color, curated to blend in well with the tunnel.

Well protected

Protection **IP66 | IK10**

Quality control **3G vibration tested**

Surge arrestor **4KV inbuilt in driver and 10KV external inside housing**



Helps the driver's eyes to efficiently adjust to the changing light levels, thereby improving visibility during day and night.

Protection from temporary blindness the driver may experience by eliminating the sudden and jarring change in light levels.



Assures driver safety and security by reducing the risk for accidents and enabling smart navigation inside the tunnel.



Optimizes the travel time by maximizing the ease in navigation, thereby establishing a secure traffic management process.



Well illuminated

P.F.	THD	Rotation	CRI	CCT (K)	Efficacy (Lm/W)	Light distribution
≥0.95	<10%	360°	70	3000 4000 5700	≥120/ ≥140	Symmetric Asymmetric Double asymmetric

The most crucial zone with luminaires installed at safe breaking distance. Proper lighting is crucial to minimize the change in light and for drivers to see the approaching tunnel properly, and not just as a dark hole.

The first interior part of the tunnel where lighting levels are kept high to match the external brightness. This prevents a sudden drop in visibility and allows drivers to transition smoothly into the tunnel. The lighting level gradually decreases to up to 40% reduced levels in the later parts of this zone to help the driver adjust better.

The driver reaches the transition zone typically after 20 secs of entering the tunnel. Here, lighting levels gradually decrease until it reaches the level of illumination at the interior zone to help the driver's eyes adapt from bright to lower interior lighting conditions.

The middle and longest section of the tunnel where lighting is uniform and designed for safe driving under relatively constant conditions. The interior zone's lighting level is determined by the speed limit and traffic intensity, typically set between 1 to 10 lux/m².

Entering into this zone, the driver's vision has to adjust for the upcoming transition of going from driving in the lowly illuminated tunnel to the high light levels outside. Here, the lighting levels gradually increase to match the brightness outside, ensuring a smooth transition for drivers exiting the tunnel.

Access

Threshold

Transition

Interior

Exit

Specialized zones, specialized lighting

Alpheca makes visual adaptation easier as a driver approaches, navigates, and exits the tunnel. With lux levels and light color temperatures that carefully considers the human eye's spatial and temporal adaptation Alpheca makes tunnel lighting as secure as possible.



Features that speaks for itself

High impact resistance
with IK10 rating

High quality vandal-proof
polycarbonate LED lens

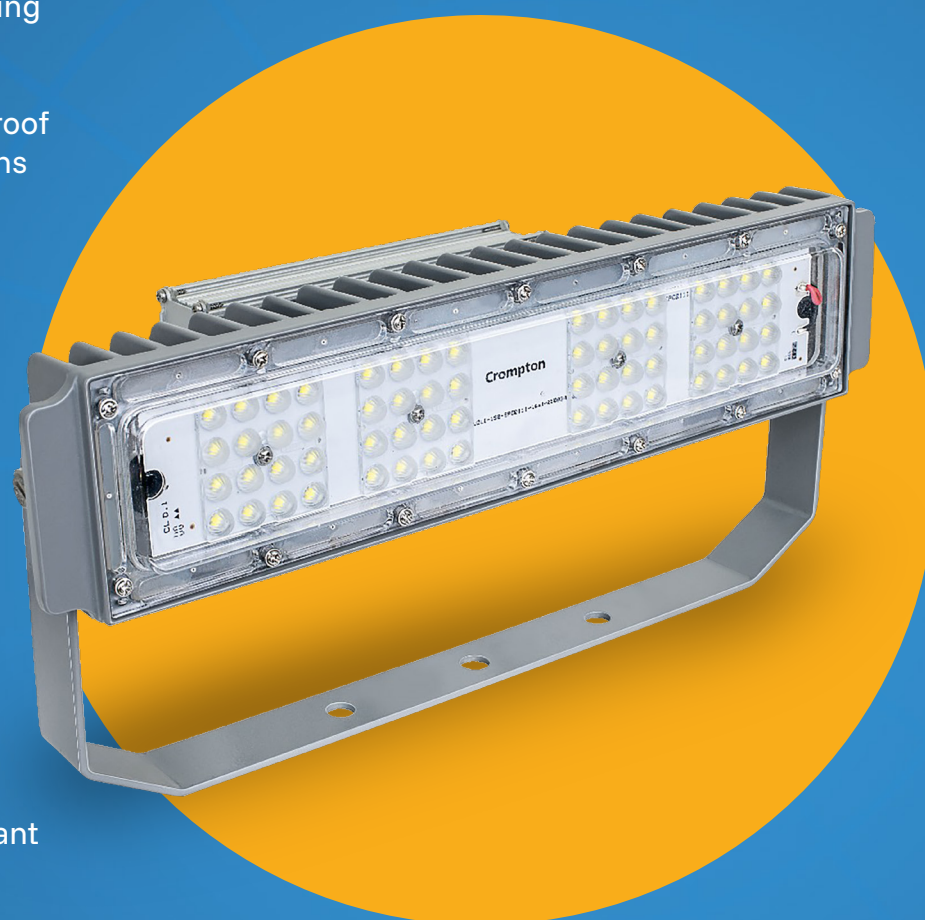
Multiple beam angles for
uniform light distribution
Symmetric, Asymmetric &
Double asymmetric

Compatible with
advanced control &
monitoring systems

Available as wired &
wireless controlled systems

Dust and water resistant
with IP66 rating

Cradle with vibration damping mechanism
provided for mounting



Benefits beyond the conventional



Adaptive Lighting Controls

Adjusts brightness based on time of
the day and weather conditions



Energy Efficient

Reduces power consumption with
dimmable LED technology



Remote Monitoring & Control

Real-time diagnostics & remote adjustments
via centralized control systems



Long-Term Cost Savings

Lower maintenance and energy costs
through intelligent automation



Emergency Response Ready

Instant adaptation to emergency
situations for enhanced safety



Seamless Integration

Works with existing local area network
(LAN) infrastructure and supports

Enhancing Safety & Efficiency of Tunnels with Intelligent Lighting Controls

Luminance Sensors

Luminance sensors ensure that the lighting in the tunnel is adaptive, energy-efficient, and optimized for safety. Intelligent daylight monitoring sensors installed at the entry and exit of the tunnel tracks the light levels at any time of the day. This allows for dynamic light level adjustments in real-time, contributing to lower operational costs while improving visibility and comfort for tunnel users.

Luminaire Controllers

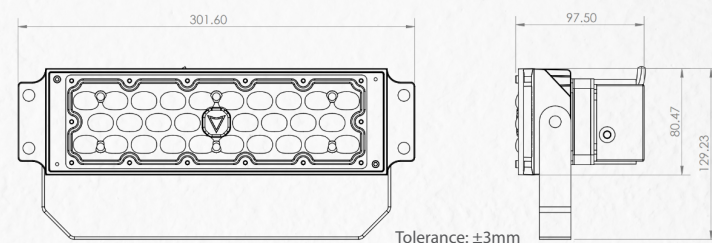
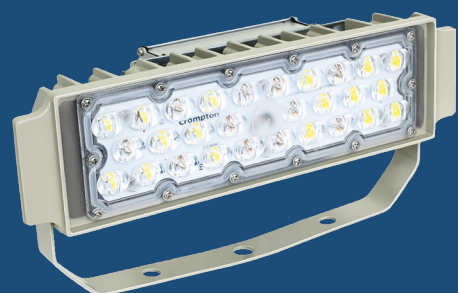
Smart controllers, installed integrated with the sensors, enables automated control of the luminaire output and light levels in the tunnel. With the real time inputs from the photometric sensors, the controllers help in dimming and switching of the lights, making it dynamic and responsive.

Seamless integration with central management system

All connected to a centralized management system which enables remote access, full-system analytic, and fault detection. This makes Alpheca a convenient and user-friendly solution. Alpheca Tunnel Lighting is technologically agnostic, designed to the requirement of the particular tunnel and traffic requirements.



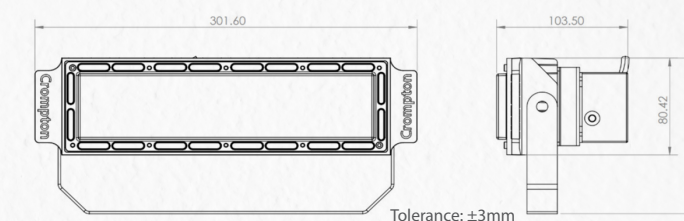
CFS-527-60-57-AS-HL2-LM-NSG



Nominal wattage (W)	CCT (K)	CRI	Voltage (V)	Main current (A)	Approx weight (Kg) ± 10%	Efficacy (Lm/W)
60	5700 ANSI	70	240	0.263	1.5	≥120

Rated system wattage and current will have tolerance as per IS 16104: 2012

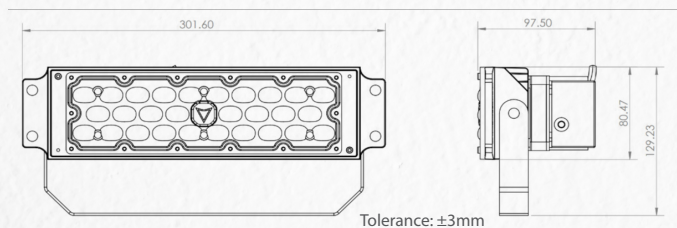
CFS-527-60-57-AS-HL4-CP-NGG



Nominal wattage (W)	CCT (K)	CRI	Voltage (V)	Main current (A)	Approx weight (Kg) ± 10%	Efficacy (Lm/W)
60	5700 ANSI	70	240	0.263	1.5	≥140

Rated system wattage and current will have tolerance as per IS 16104: 2012

CFS-527-80-57-AS-HL2-LM-NSG

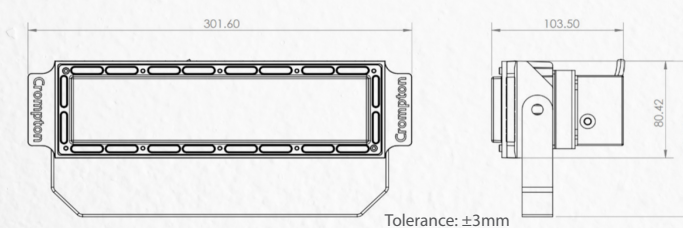


Nominal wattage (W)	CCT (K)	CRI	Voltage (V)	Main current (A)	Approx weight (Kg) ± 10%	Efficacy (Lm/W)
80	5700 ANSI	70	240	0.351	1.5	≥120

Rated system wattage and current will have tolerance as per IS 16104: 2012



CFS-527-80-57-AS-HL4-CP-NGG

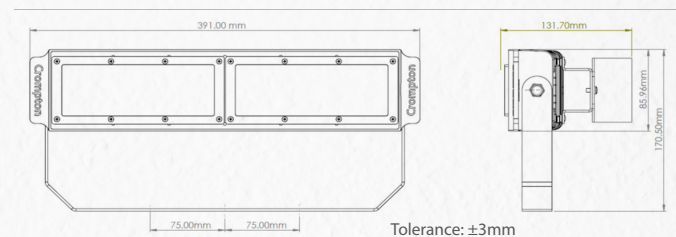
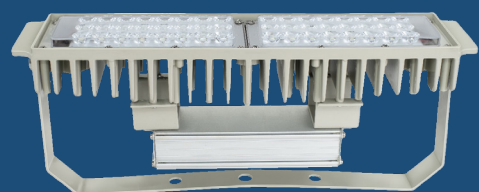


Nominal wattage (W)	CCT (K)	CRI	Voltage (V)	Main current (A)	Approx weight (Kg) ± 10%	Efficacy (Lm/W)
80	5700 ANSI	70	240	0.351	1.5	≥140

Rated system wattage and current will have tolerance as per IS 16104: 2012



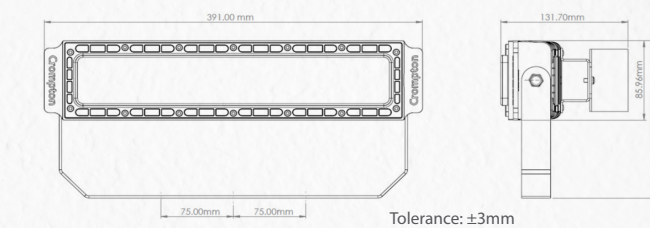
CFS-528-120-57-30D-HL2-LM-NSG



Nominal wattage (W)	CCT (K)	CRI	Voltage (V)	Main current (A)	Approx weight (Kg) ± 10%	Efficacy (Lm/W)
120	5700 ANSI	70	240	0.527	3.0	≥120

Rated system wattage and current will have tolerance as per IS 16104: 2012

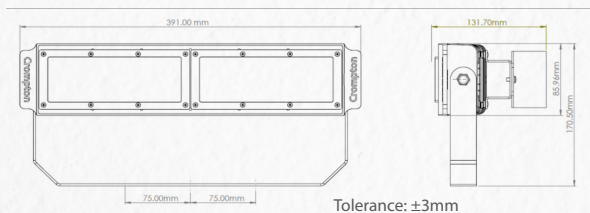
CFS-528-120-57-AS-HL4-CP-NGG



Nominal wattage (W)	CCT (K)	CRI	Voltage (V)	Main current (A)	Approx weight (Kg) ± 10%	Efficacy (Lm/W)
120	5700 ANSI	70	240	0.526	3.0	≥140

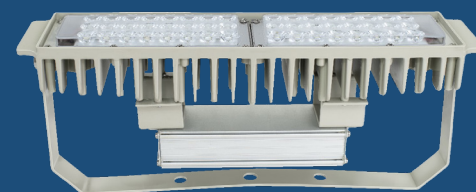
Rated system wattage and current will have tolerance as per IS 16104: 2012

CFS-528-150-57-30D-HL2-LM-NSG

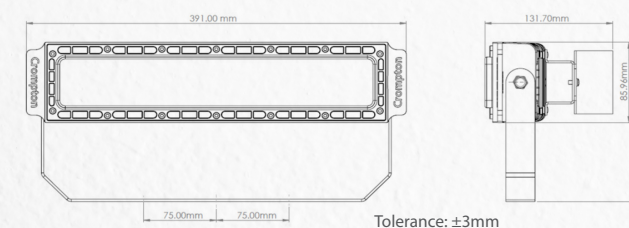


Nominal wattage (W)	CCT (K)	CRI	Voltage (V)	Main current (A)	Approx weight (Kg) ± 10%	Efficacy (Lm/W)
150	5700 ANSI	70	240	0.658	3.0	≥120

Rated system wattage and current will have tolerance as per IS 16104: 2012



CFS-528-150-57-AS-HL4-CP-NGG

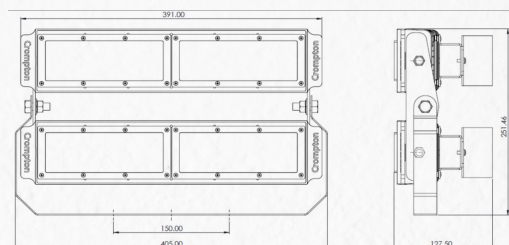


Nominal wattage (W)	CCT (K)	CRI	Voltage (V)	Main current (A)	Approx weight (Kg) ± 10%	Efficacy (Lm/W)
150	5700 ANSI	70	240	0.658	3.0	≥140

Rated system wattage and current will have tolerance as per IS 16104: 2012



CFS-528-240-57-30D-HL2-LM-NSG

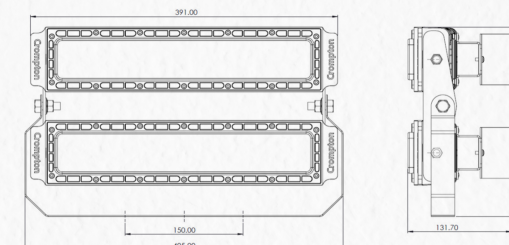


Tolerance: ±3mm

Nominal wattage (W)	CCT (K)	CRI	Voltage (V)	Main current (A)	Approx weight (Kg) ± 10%	Efficacy (Lm/W)
240	5700 ANSI	70	240	1.052	5.50	≥120

Rated system wattage and current will have tolerance as per IS 16104: 2012

CFS-528-240-57-AS-HL4-CP-NGG

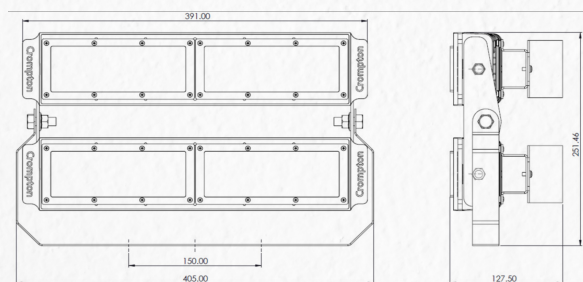


Tolerance: ±3mm

Nominal wattage (W)	CCT (K)	CRI	Voltage (V)	Main current (A)	Approx weight (Kg) ± 10%	Efficacy (Lm/W)
240	5700 ANSI	70	240	1.052	5.50	≥140

Rated system wattage and current will have tolerance as per IS 16104: 2012

CFS-528-300-57-30D-HL2-LM-NSG



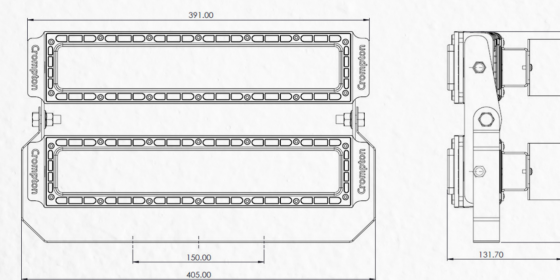
Tolerance: ±3mm

Nominal wattage (W)	CCT (K)	CRI	Voltage (V)	Main current (A)	Approx weight (Kg) ± 10%	Efficacy (Lm/W)
300	5700 ANSI	70	240	1.316	5.50	≥120

Rated system wattage and current will have tolerance as per IS 16104: 2012



CFS-528-300-57-AS-HL4-CP-NGG



Tolerance: ±3mm

Nominal wattage (W)	CCT (K)	CRI	Voltage (V)	Main current (A)	Approx weight (Kg) ± 10%	Efficacy (Lm/W)
300	5700 ANSI	70	240	1.316	5.50	≥140

Rated system wattage and current will have tolerance as per IS 16104: 2012

