

# The Essential Guide to Construction Lighting



# PERFECT YOUR ILLUMINATION

NORDIC LIGHTS® work lights change the operating experience completely. Operators will have a perfectly illuminated, unobstructed view of the area around and in front of the vehicle. Our lights minimize downtime, help avoid accidents, and boost productivity on the construction site.

Over 30 years of product development and field tests with the largest construction vehicle manufacturers in the world is our proof of concept. Make construction jobs easier, safer, and more productive with Nordic Lights expertly planned lighting solutions.



**Save  
Money**



**Avoid  
Accidents**



**Increase  
Productivity**



## FEATURED TOPICS

### Optimize your lighting

Excavator

Wheel loader

### Tech talk

Color temperature

CRI

Glare-free lighting

Light patterns

### Products

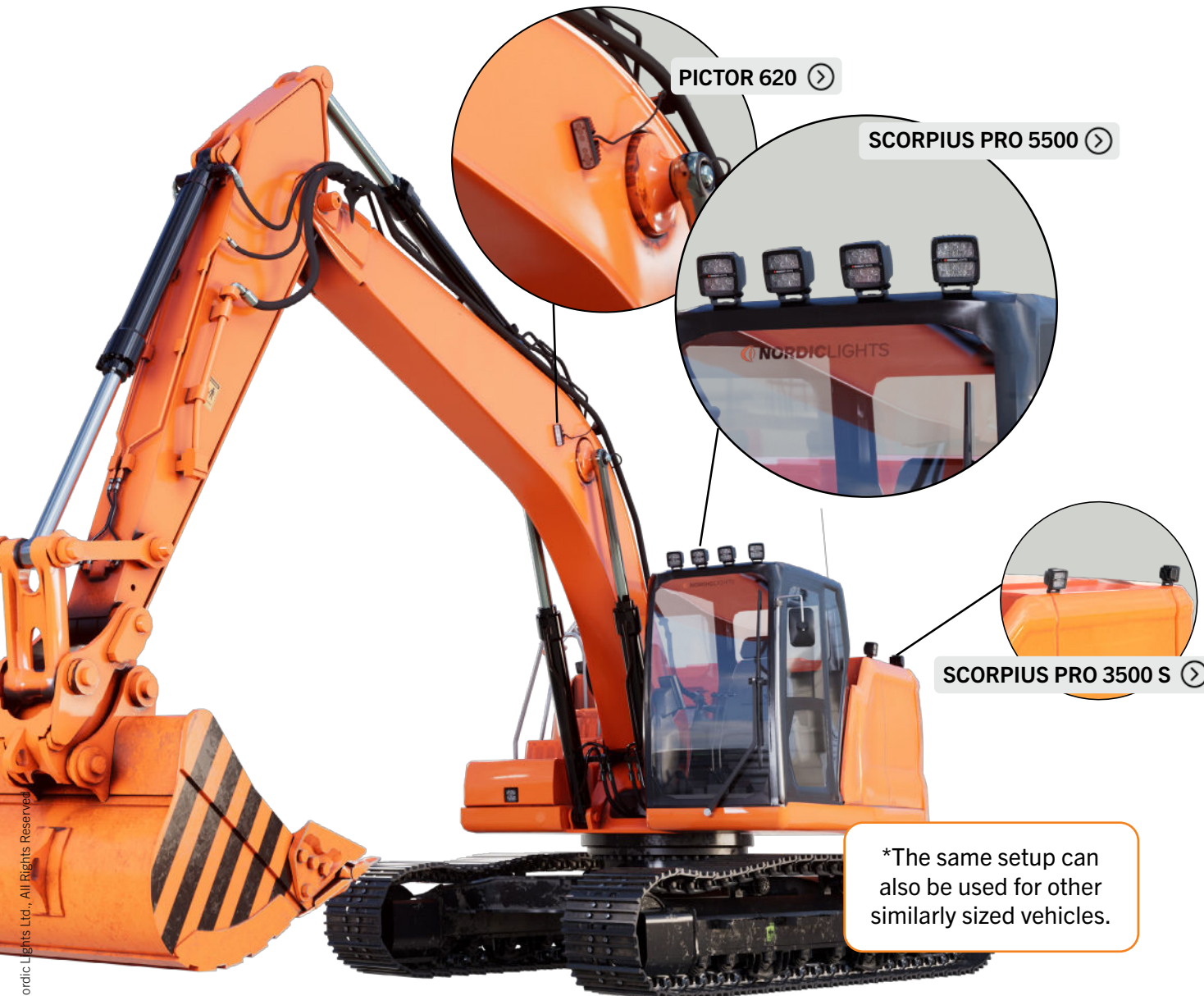


This symbol indicates that you can find related information, just click the link or find the corresponding page.



# Dig what you see

Medium-sized excavator



\*The same setup can also be used for other similarly sized vehicles.

## PROFESSIONAL SETUP

Choose the professional setup for unbeatable productivity and safety – your bottom line will shine. The **PRO Series** lights feature excellent color rendering, optimal color temperature and clever optical solutions to minimize reflections and glare.

**Choose the professional setup to:**

- Eliminate disturbing glare
- Work with confidence
- Boost operators' energy

## THE BUDGET-FRIENDLY OPTION

## BASIC SETUP

The basic setup with Scorpius GO 420 hits a sweet spot between value and light output. It boosts visibility, but does not feature the same optical solutions as the professional setup.

**Choose a basic setup when you:**

- Need standard illumination
- Work in harsh conditions
- Look for a basic solution

# Notice the difference

## PROFESSIONAL

The professional setup provides excellent forward visibility thanks to four **Scorpius PRO 5500** on the cabin. At the same time, one **Pictor 620** on each side of the boom casts light exactly where it's intended, with the targeted illumination eliminating reflections.

Meanwhile, four glare-free **Scorpius PRO 3500 S** on the counterweight (one on each side and two illuminating backwards) make sure that no personnel is blinded by glare.



People working near the vehicle won't be blinded, thanks to Nordic Lights' glare-free optical solutions.



## ORIGINAL

The original setup is what the vehicle comes equipped with when it rolls out of the factory. It provides you with general illumination which is rarely optimized. It does not feature our calculated targeted illumination nor the same optical solutions as the Nordic Lights professional setup.





# Get a load of this

Medium-sized wheel loader



\*The same setup can also be used for other similarly sized vehicles.

## THE OPTIMAL CHOICE

### PROFESSIONAL SETUP

For ultimate productivity, choose the professional setup. The **PRO Series** lights feature excellent color rendering, optimal color temperature and clever optical solutions to minimize reflections and glare.

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## THE BUDGET-FRIENDLY OPTION

### BASIC SETUP

The basic setup with Scorpis GO 420 hits a sweet spot between value and light output. It boosts visibility, but does not feature the same optical solutions as the professional setup.

**Choose a basic setup when you:**

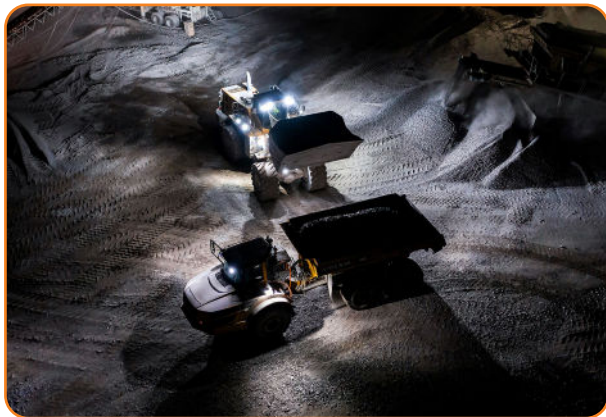
- Need standard illumination
- Work in harsh conditions
- Look for a basic solution

# See the change

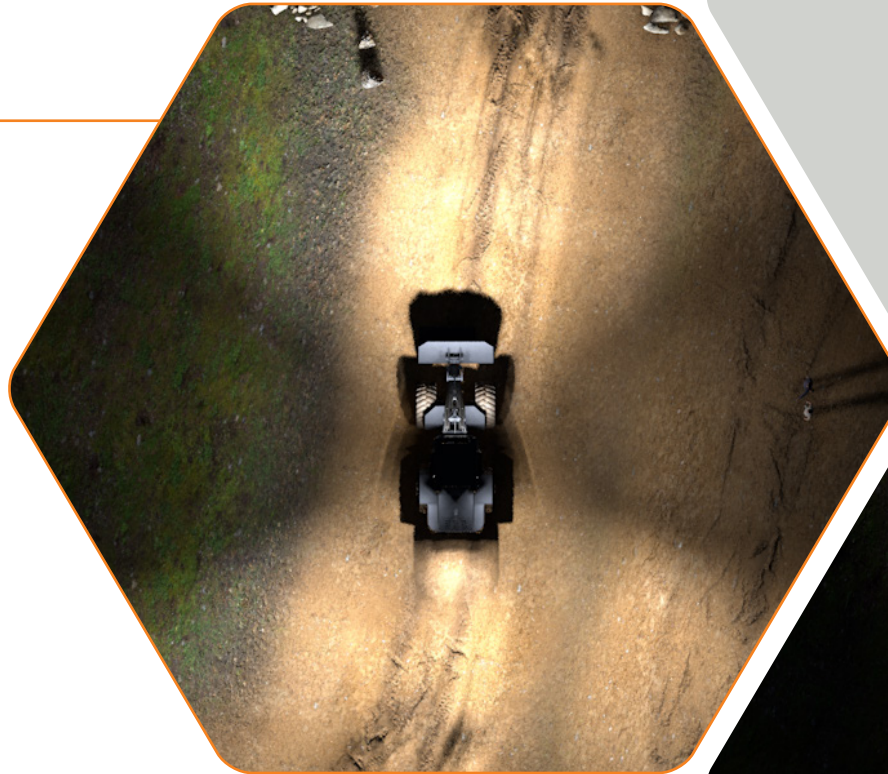
## PROFESSIONAL

The professional setup provides 360-degree visibility thanks to eight powerful **Scorpius PRO 5500** on the cabin.

Two glare-free **Scorpius PRO 415 PH** illuminate to the left and right of the wheel loader, to make sure that no one working in the vicinity of the vehicle is blinded by glare.



The illumination is even all around the vehicle, resulting in a safe and efficient work area.



## ORIGINAL

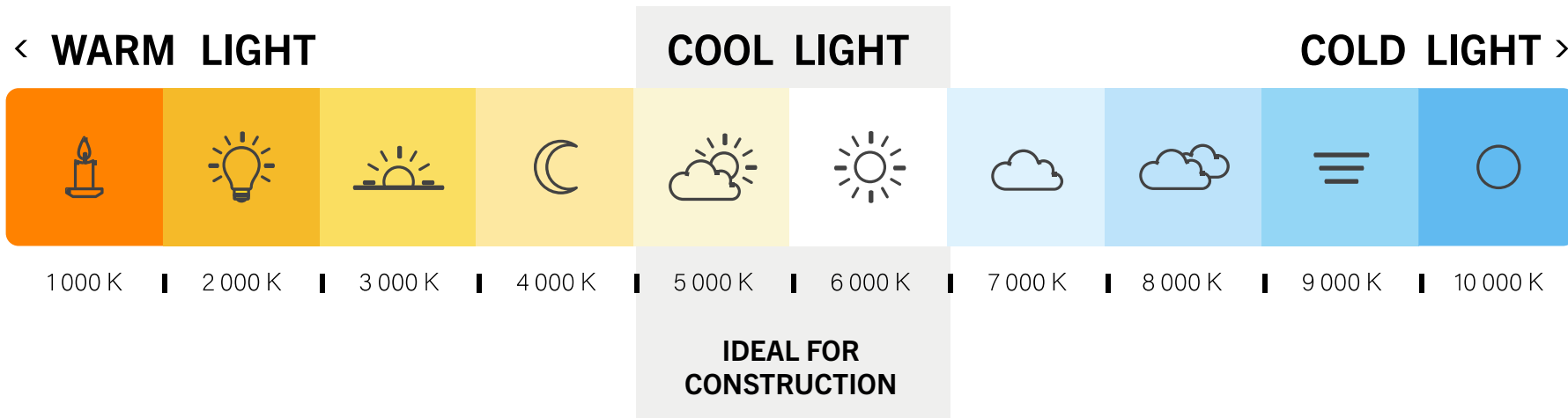
The original setup is what the vehicle comes equipped with when it rolls out of the factory. It provides you with general illumination which is rarely optimized. It does not feature our calculated targeted illumination nor the same optical solutions as the Nordic Lights professional setup.



# Boost productivity with the right color

Color temperature, or CCT for short, defines the color appearance of light and is measured in kelvin (K). It tells you whether the light is “warm” (yellow/red) or “cold” (blue). A burning candle has a color temperature of about 1800K (very warm), while a clear blue sky can be up to 10 000K (very cold). CCT impacts how bright a light is perceived when looked at straight on, but it is NOT a measurement of brightness.

Our lights for construction max out at 5700 kelvin, making them an ideal “cool” CCT, like working in daylight. This color temperature energizes operators, reduces eye strain and general fatigue, and keeps personnel alert for longer periods of time, increasing efficiency. Overly cold light (blue light) strains the eyes while extremely warm light (red light) makes operators tired since it increases melatonin production in the central nervous system. Since both can lead to accidents, it is important to strike the right balance in color temperature.

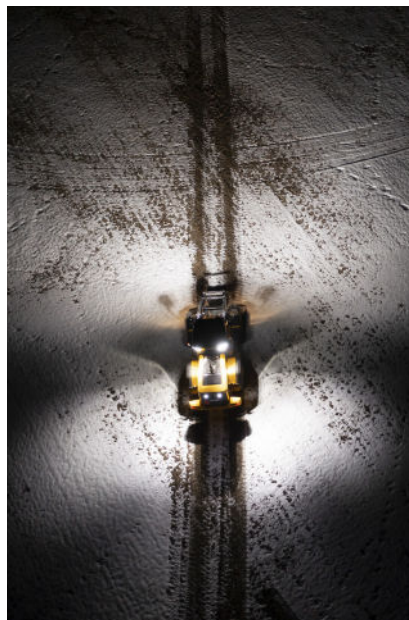




# Boost productivity with the right color

## DO's

- + Use work lights in the 5000-5700 kelvin range to keep operators more alert and shorten reaction time.
- + Use cool color temperatures similar to daylight to boost the performance of the operators.
- + Minimize the operators' eye strain and general fatigue by choosing a color temperature similar to daylight.



## DON'Ts

- Do not use work lights over 5700K in visually challenging environments such as in rain, dust, snow, or fog. Instead, opt for a warmer color temperature.
- Avoid using lights with overly cold color temperatures. Such lights produce inaccurate colors with too much contrast between light and dark, which causes eye strain.
- Do not assume that an overly cold color temperature light is better, simply because it is perceived as brighter. From an operator's perspective, the illumination will not deliver optimal visibility.

# Apply the benefits of high CRI

CRI, or Color Rendering Index, measures a light's ability to reproduce colors of objects compared to sunlight. CRI is measured between 0 and 100, with higher values meaning more accurate color rendering. We make lights with a minimum CRI of 80. For comparison, the CRI of the sun is 100.

A high CRI light helps operators identify the correct materials and their respective colour differences on the construction site. Operators will avoid accidents caused by inconsistent CRI, and thus reduce downtime and redoing of the same tasks. A high CRI light setup helps operators make the right decisions at critical moments.

**Good CRI**



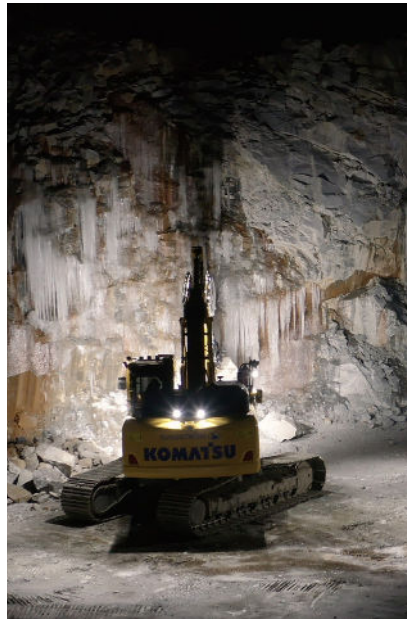
**Bad CRI**



# Apply the benefits of high CRI

## DO's

- + Aid operators in making critical decisions by accurately reproducing shades of colors. Move the correct materials and avoid digging into pipes and cables.
- + Utilize high CRI to maximize the workflow and safety of the construction site.
- + Use high CRI lights to increase the situational awareness of operators on busy construction sites.



## DON'Ts

- Do not think that brighter lights will result in more accurate colors.
- Do not choose colder temperature lights to get more vibrant colors – it doesn't work.
- Don't underestimate the importance of CRI – bad lighting slows down your business.



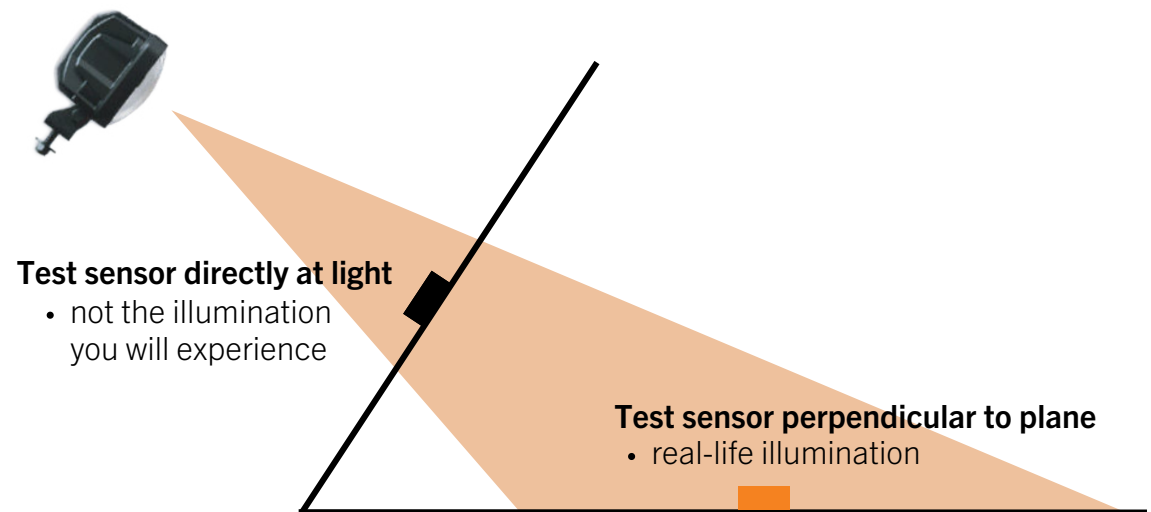
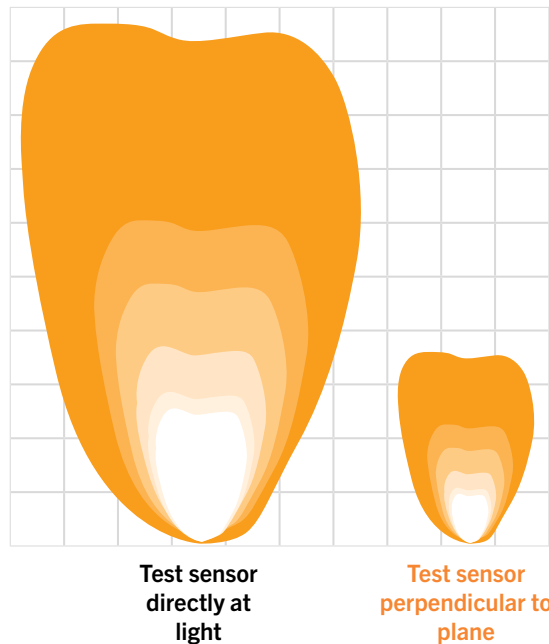
# Measuring and selecting light patterns

To determine the light pattern fit for your vehicle, it is important to consider the surrounding circumstances. Are you working in a crowded urban environment, or paving the way for a large-scale infrastructure project? Do you need to light up long distances, or are you looking for excellent near-field illumination? In any case, you will need to choose a suitable pattern for your light.

How a light pattern looks in the field depends on how and where you install the light. We present the light patterns of our work lights with the light tilted at a  $-17^\circ$  angle at 3 m height, and always with the test sensor

perpendicular to the test plane. We choose to present our light patterns using this method because, in our opinion, it is the more realistic of the two.

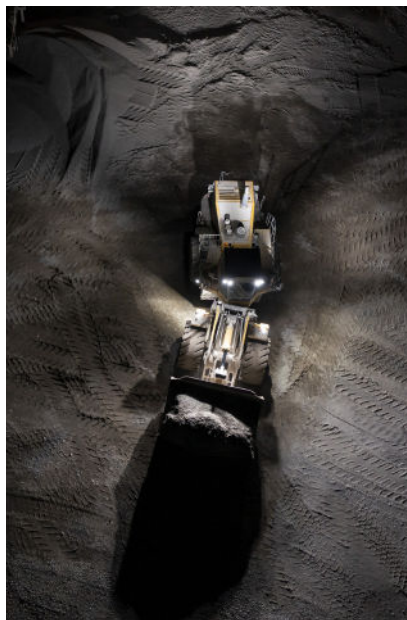
Many light manufacturers present their light patterns with the test sensor pointed directly at the light. This will result in better-looking presentation of the pattern on paper (bigger areas illuminated). It will not depict how much light is actually hitting the work area.



# Measuring and selecting light patterns

## DO's

- + Pick the right light pattern for the task. Not all patterns are created equal.
- + Trust our experts – our professional upgrade package already ensures even illumination.
- + Compare correctly. Check how the manufacturer measures the illumination.



## DON'Ts

- Do not forget about the ways to measure. We show the illumination as you will experience it in the field.
- Don't look solely at theoretical data – our simulated comparisons illustrate the differences.
- Don't focus on the light pattern of a single product – look at the light distribution of the entire setup.

# A glare-free work environment

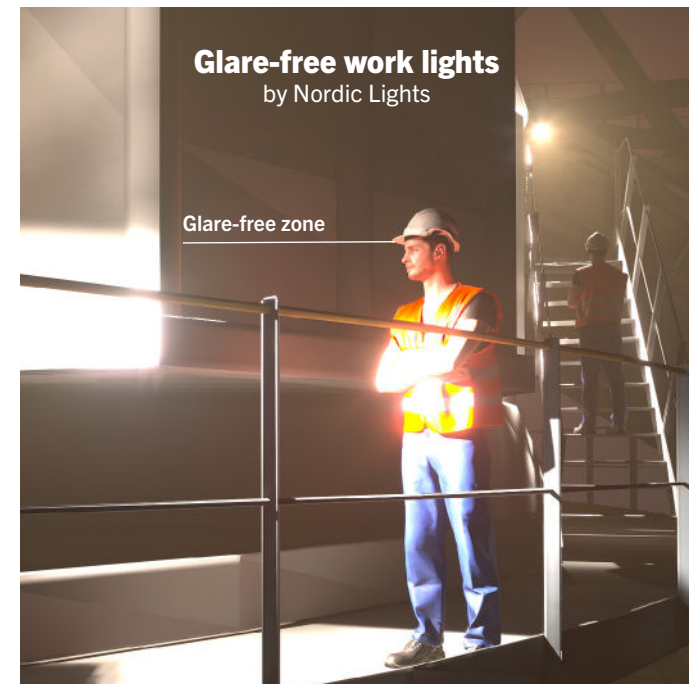
Standard work lights can cause visibility issues and dangerous situations due to glare. Blinding lights lead to costly mistakes and delays, directly impacting the success of your construction operations.

We offer you different ways to tackle glare on the construction site. The end-results are fewer accidents, less downtime, and a more efficient workflow. Featuring a clear cut-off-line, the glare-free lights deliver focused illumination of the work area with no stray light, optimizing lumen output and power consumption.

The Scorpius PRO 3500 S is a perfect match for any construction ve-

hicle to illuminate in all directions. The result is a glare-free work area, with superb task lighting. You can equip your whole fleet for work in busy urban areas, or multi-machine operations with these lights. That's the clever thing about the optical solution. No glare for any vehicle on the site, and minimized eye strain for operators, even during long shifts.

The Canis and Scorpius PRO 415 PH are ideal for minimizing disturbing reflections when looked at through mirrors and cameras, or for when you need to add service lights to your fleet to create safe access to the vehicle.





# A glare-free work environment

## DO's

- + Ensure safety and efficiency with a glare-free work site
- + Notice the boost in productivity and decrease in accidents.
- + Trust the recommended positioning of the lights. The professional setups feature efficient forward illumination with glare-free lighting in the proper positions.



## DON'Ts

- Don't cover or tilt your standard work light. Instead look for a work light with built-in technology and a well designed cut-off line.
- Do not underestimate the negative impact of glare – it affects people on and around the construction site.
- Avoid thinking that more lumens equals better illumination of the work area. What matters is the amount of light on the desired area.



### PROFESSIONAL SELECTION

Scorpius PRO 3500 S	➤
Scorpius PRO 5500	➤
Scorpius PRO 4500	➤
Scorpius PRO 4000 WARM	➤
Scorpius PRO 3500	➤
Scorpius PRO 2500	➤
Canis PRO 330	➤
Scorpius PRO 415 PH	➤
Canis PRO 415 PH	➤
Pictor 620	➤
Pictor GO 620	➤
Pictor PRO 830	➤
Sato PRO 745	➤
Sculptor 2	➤
Corona 400	➤

### BASIC SELECTION

Scorpius GO 410	➤
Scorpius GO 420	➤
Scorpius GO 430	➤
Canis GO 410	➤
Canis GO 420	➤

Work lights for construction need to be rugged, long-lasting and provide excellent illumination. Both the basic and professional setup include lights suitable for harsh conditions. For ultimate productivity, choose a product from the professional selection.

**All of our work lights for construction have the following specifications in common:**

**CCT 5000-5700**

**CISPR 25 CLASS 5**

**IP68, IP6K9K**

**Aluminum housing**

**CRI ≥ 80**

For more specifications, check the product pages below.





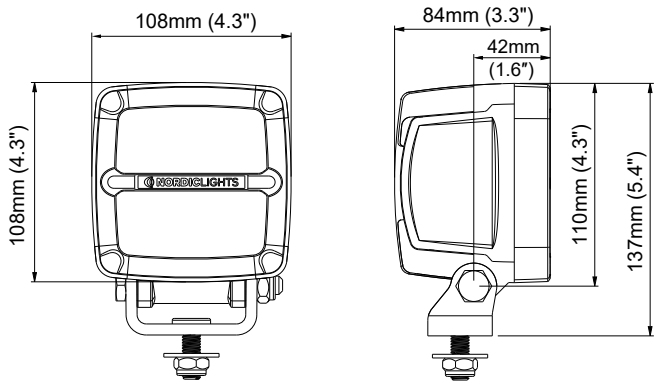
The **Scorpius PRO 3500 S** is a perfect match for any construction vehicle. Thanks to the expertly designed optics this work light is powerful enough to illuminate in all directions, including the work area in front of the machine. You will have a complete glare-free zone around the vehicle, and superb task lighting which can be adapted to the specific task or operators' needs by adjusting the tilt angle of the lights.

You can equip your whole fleet for work in busy urban areas, or multi-machine operations with these lights. Visibility will be maintained, and operators of vehicles in the vicinity will not be blinded by glare.

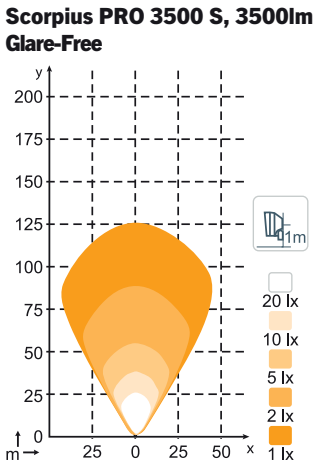
# Scorpius PRO 3500 S

TECHNICAL SPECIFICATIONS	SCORPIUS PRO 3500 S
Theoretical / Operational Lumens	4500lm / 3500lm
Power Consumption	50W
Vibration	15.44Grms 10-2000Hz
Nominal Current	24V=2.0A, 12V=4.3A

## DRAWINGS



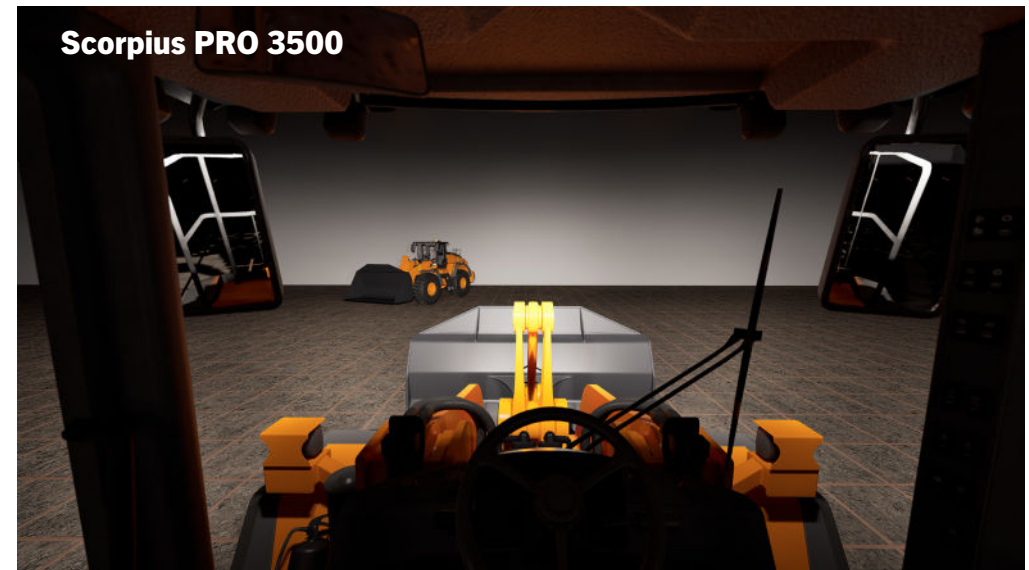
## LIGHT PATTERNS



# What you gain

- No glare for any vehicle on and around the construction site.
- Minimized eye strain for operators, even during long shifts.
- Fewer accidents, less downtime, and a more efficient workflow.
- Task lighting that can be adapted to the specific task or operators' needs by adjusting the tilt angle.
- No stray light, but optimized light output focused on the work area, thanks to the clear cut-off line.

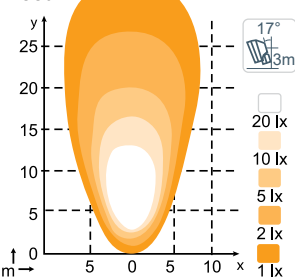
## See the difference - Glare-free vs. standard work light



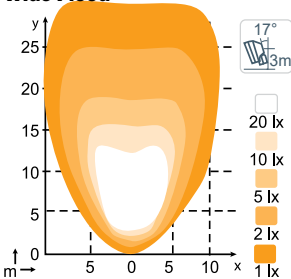


LIGHT PATTERNS

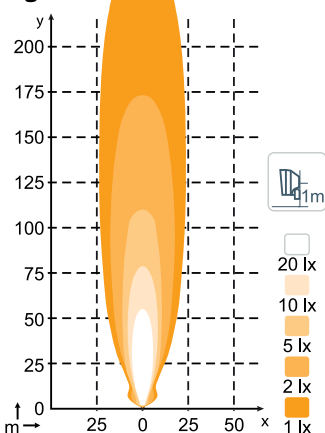
Scorpius PRO 5500, 5200lm Flood



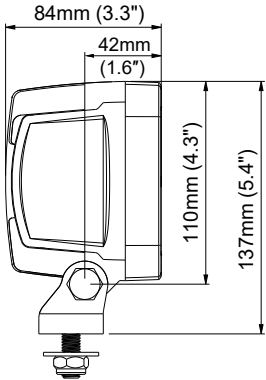
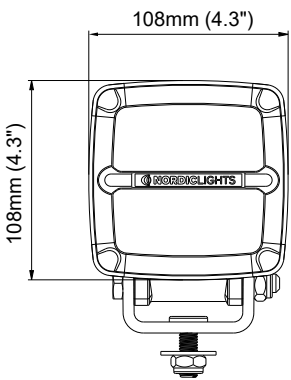
Scorpius PRO 5500, 5200lm Wide Flood



Scorpius XTR 5500 QD, 5200lm High Beam



DRAWINGS



Scorpius PRO 5500

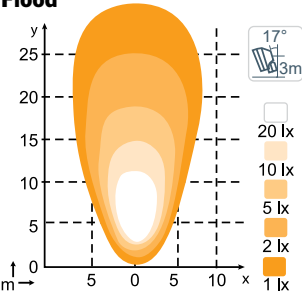
TECHNICAL SPECIFICATIONS	SCORPIUS PRO 5500
Theoretical / Operational Lumens	8300lm / 5200lm
Power Consumption	52W
Vibration	15.44Grms 10–2000Hz
Nominal Current	24V=2.1A, 12V=4.6A



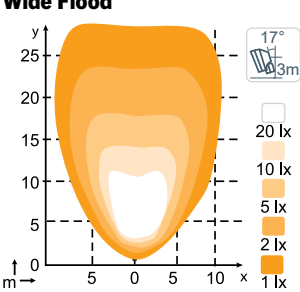


LIGHT PATTERNS

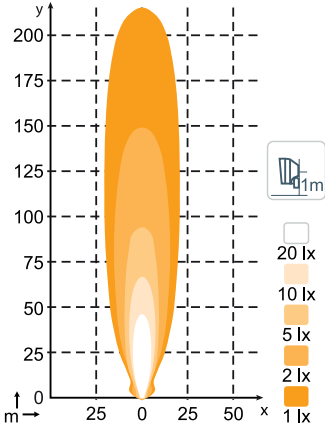
Scorpius PRO 4500, 4200lm Flood



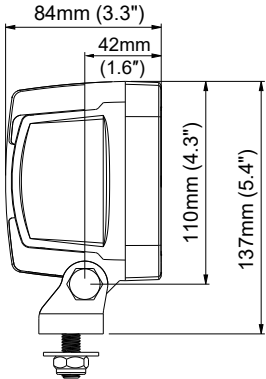
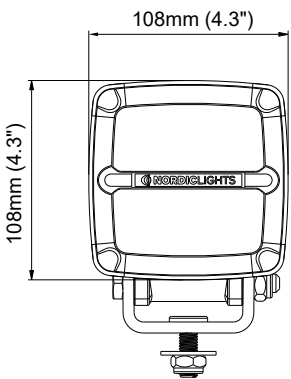
Scorpius PRO 4500, 4200lm Wide Flood



Scorpius PRO 4500, 4200lm High Beam



DRAWINGS



Scorpius PRO 4500

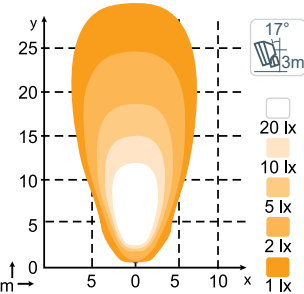
TECHNICAL SPECIFICATIONS	SCORPIUS PRO 4500
Theoretical / Operational Lumens	6700lm / 4200lm
Power Consumption	40W
Vibration	15.44Grms 10–2000Hz
Nominal Current	24V=1.6A, 12V=3.6A

Color temperature 3000K,  
ideal for environments with  
snow, dust and fog

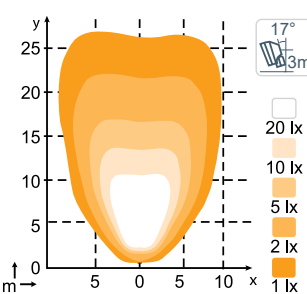


LIGHT PATTERNS

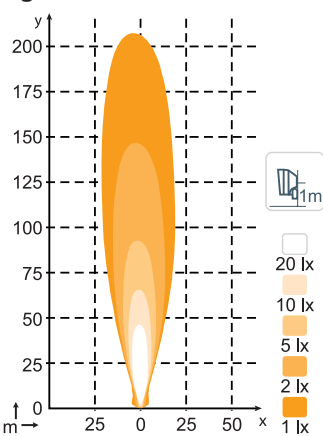
Scorpius PRO 4000 WARM, 3800lm  
Flood



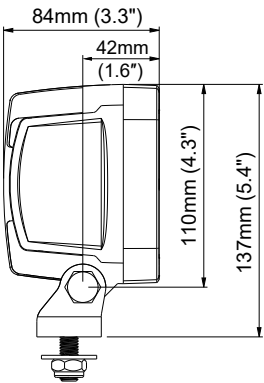
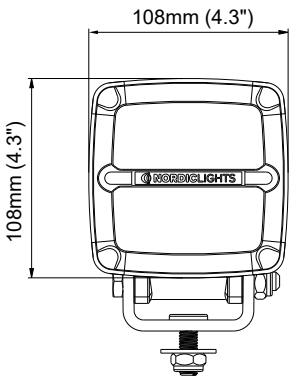
Scorpius PRO 4000 WARM, 3800lm  
Wide Flood



Scorpius PRO 4000 WARM, 3800lm  
High Beam



DRAWINGS



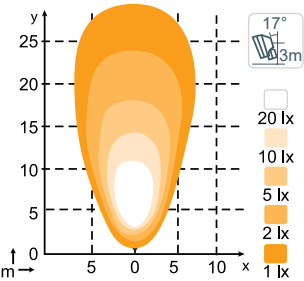
Scorpius PRO 4000 WARM

TECHNICAL SPECIFICATIONS	SCORPIUS PRO 4000 WARM
Theoretical / Operational Lumens	6100lm / 3800lm
Power Consumption	50W
Vibration	15.44Grms 10–2000Hz
Nominal Current	24V=2.0A, 12V=4.2A

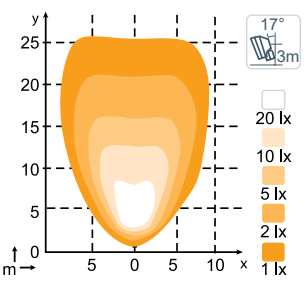


LIGHT PATTERNS

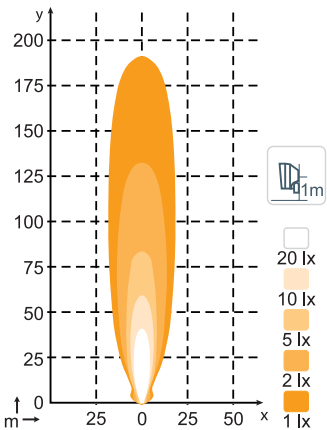
Scorpius PRO 3500, 3200lm Flood



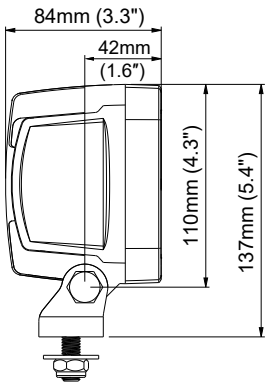
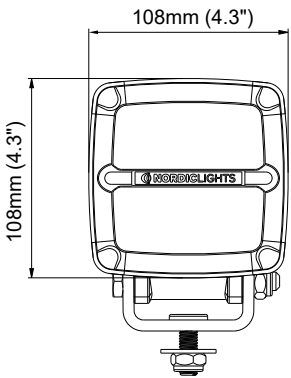
Scorpius PRO 3500, 3200lm Wide Flood



Scorpius PRO 3500, 3200lm High Beam



DRAWINGS



Scorpius PRO 3500

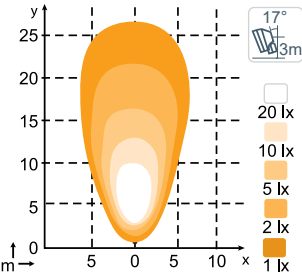
TECHNICAL SPECIFICATIONS	SCORPIUS PRO 3500
Theoretical / Operational Lumens	5000lm / 3200lm
Power Consumption	28W
Vibration	15.44Grms 10–2000Hz
Nominal Current	24V=1.2A, 12V=2.4A



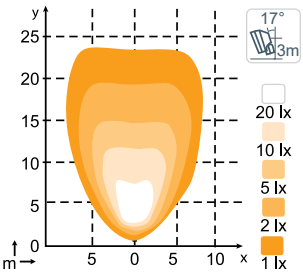


LIGHT PATTERNS

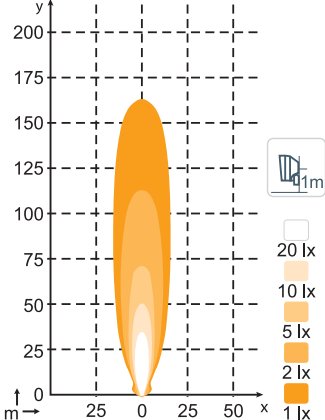
Scorpius PRO 2500, 2300lm Flood



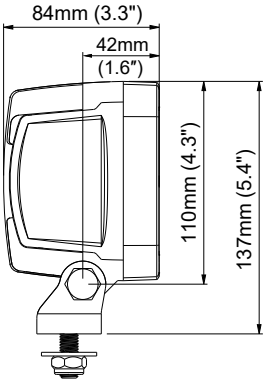
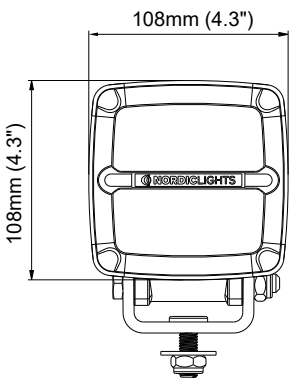
Scorpius PRO 2500, 2300lm Wide Flood



Scorpius PRO 2500, 2300lm High Beam



DRAWINGS

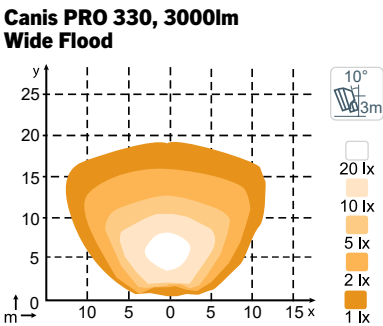


Scorpius PRO 2500

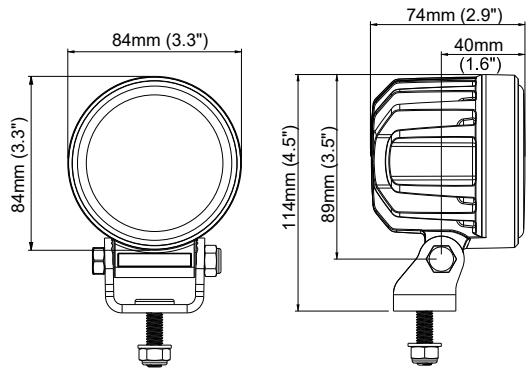
TECHNICAL SPECIFICATIONS	SCORPIUS PRO 2500
Theoretical / Operational Lumens	3700lm / 2300lm
Power Consumption	19W
Vibration	15.44Grms 10–2000Hz
Nominal Current	24V=0.8A, 12V=1.6A



LIGHT PATTERNS



DRAWINGS



Canis PRO 330

TECHNICAL SPECIFICATIONS	CANIS PRO 330
Theoretical / Operational Lumens	4800lm / 3000lm
Power Consumption	28W
Vibration	15.3Grms 24-2000Hz
Nominal Current	24V=1.15A, 12V=2.3A

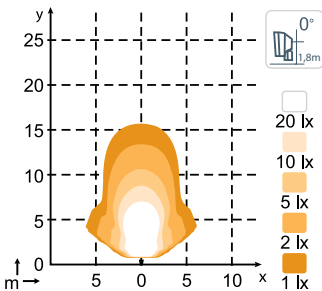


# Scorpius PRO 415 PH

TECHNICAL SPECIFICATIONS	SCORPIUS PRO 415 PH
Theoretical / Operational Lumens	1950lm / 1500lm
Power Consumption	28W
Vibration	8Grms 24-2000Hz
Nominal Current	24V=1.2A, 12V=2.4A

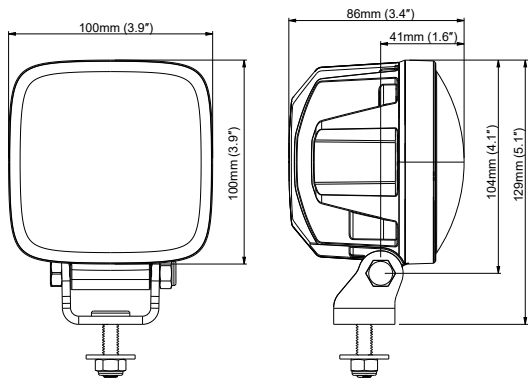
## LIGHT PATTERNS

Scorpius PRO 415 PH, 1500lm  
Glare-Free



Also available in a [top-down version](#), find the details on our website [nordiclights.com/products](#)

## DRAWINGS

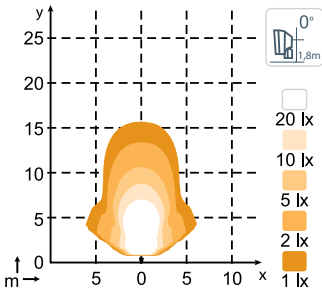






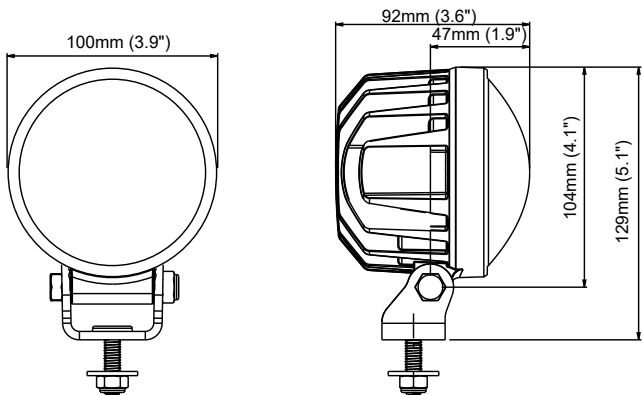
LIGHT PATTERNS

Canis PRO 415 PH, 1500lm  
Glare-Free



Also available in a [top-down version](#), find the details on our website [nordiclights.com/products](#)

DRAWINGS

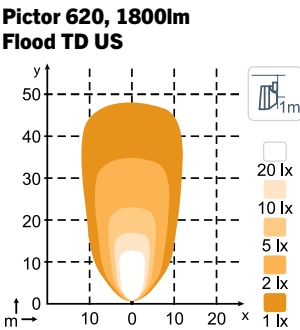


Canis PRO 415 PH

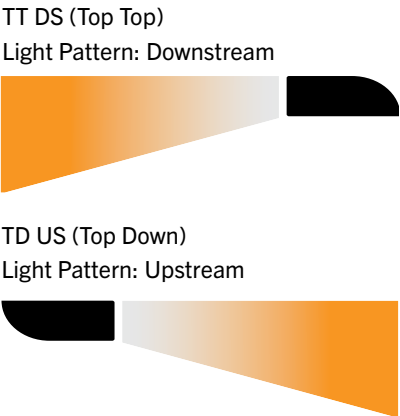
TECHNICAL SPECIFICATIONS	CANIS PRO 415 PH
Theoretical / Operational Lumens	1950lm / 1500lm
Power Consumption	28W
Vibration	8Grms 24-2000Hz
Nominal Current	24V=1.2A, 12V=2.4A



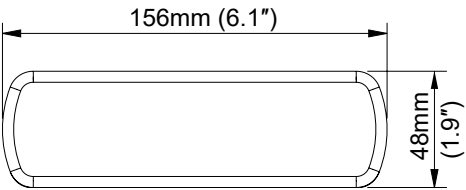
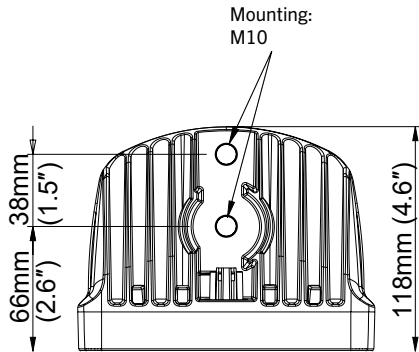
LIGHT PATTERNS



PROJECTION ANGLE



DRAWINGS



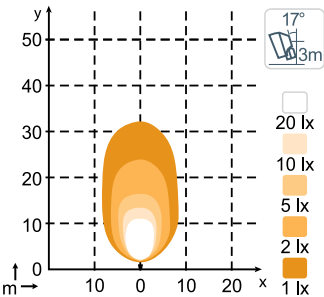
Pictor 620

TECHNICAL SPECIFICATIONS	PICTOR 620
Theoretical / Operational Lumens	2700lm / 1800lm
Power Consumption	28W
Vibration	15.3Grms 24-2000Hz
Nominal Current	24V=1.0A, 12V=2.0A

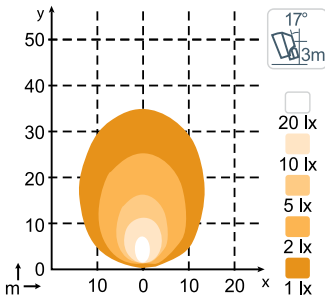


LIGHT PATTERNS

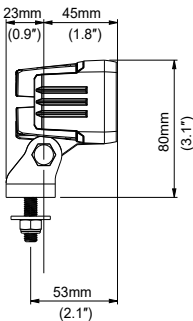
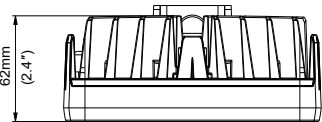
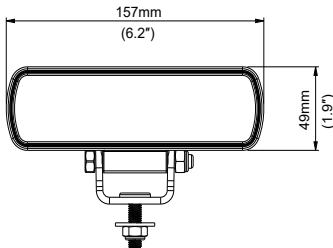
Pictor GO 620, 2000lm  
Flood



Pictor GO 620, 1800lm  
Diffused



DRAWINGS



Pictor GO 620

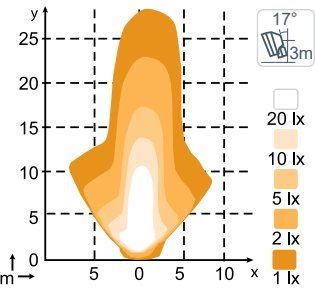
TECHNICAL SPECIFICATIONS	PICTOR GO 620
Theoretical / Operational Lumens	3000lm / 2000lm
Power Consumption	29W
Vibration	8Grms 24-2000Hz
Nominal Current	24V=1.03A, 12V=2.16A



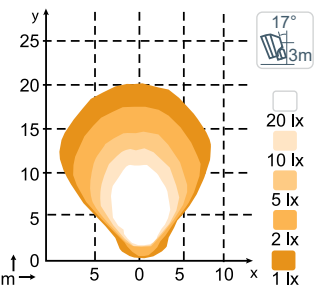


LIGHT PATTERNS

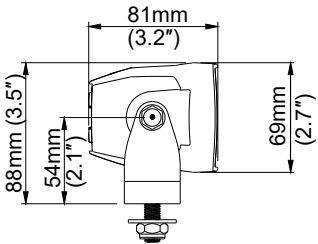
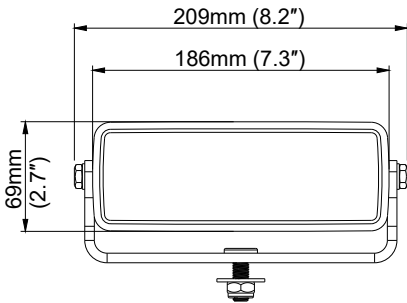
Pictor PRO 830, 3000lm  
Wide Flood RH (Asymmetric)



Pictor PRO 830, 3000lm  
Wide Flood (Asymmetric)



DRAWINGS



Pictor PRO 830

TECHNICAL SPECIFICATIONS	PICTOR PRO 830
Theoretical / Operational Lumens	4800lm / 3000lm
Power Consumption	46W
Vibration	15.3Grms 24-2000Hz
Nominal Current	24V=1.6A, 12V=2.9A

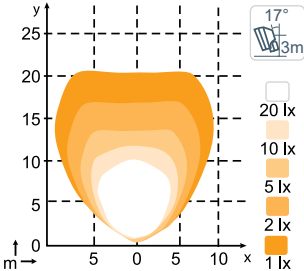


# Sato PRO 745

TECHNICAL SPECIFICATIONS	SATO PRO 745
Theoretical / Operational Lumens	7000lm / 4400lm
Power Consumption	48W
Vibration	8Grms 24-2000Hz
Nominal Current	24V=1.8A, 12V=3.9A

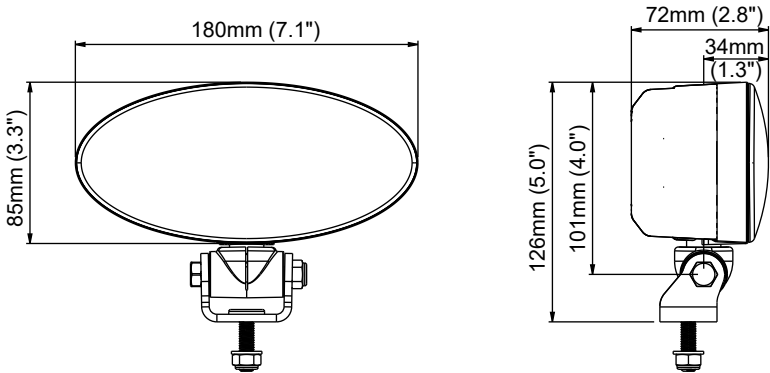
## LIGHT PATTERNS

Sato PRO 745, 4400lm  
Flood



Also available in [Snap-In](#) and [Top-Down](#) versions, find the details on our website [nordiclights.com/products](#)

## DRAWINGS



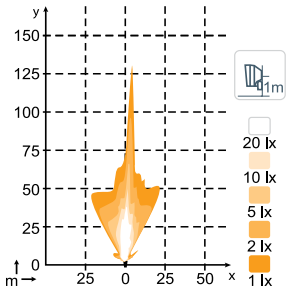


# Sculptor 2

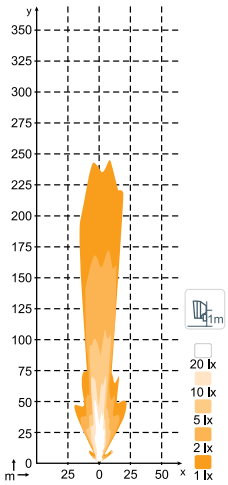
TECHNICAL SPECIFICATIONS	SCULPTOR 2
Functions	Daytime Running Light (DRL), Position Light, Direction Indicator, Low Beam, High Beam.
Power Consumption	High Beam 57.5W, Low Beam 38.5W, Park 4.0W, DRL 17.5W, Direction Indicator 21W
ECE Approvals	Passing beam: ECE R149 (Class B) Driving beam: ECE R149 (Class B) Position light: ECE R148 (Symbol A) DRL: ECE R148 (Symbol RL) Direction indicator: ECE R148 [Symbol 1B (front) & symbol 5 (side)]
Material Housing / Lens	Plastic / Glass

## LIGHT PATTERNS

Sculptor 2  
Low Beam RHT

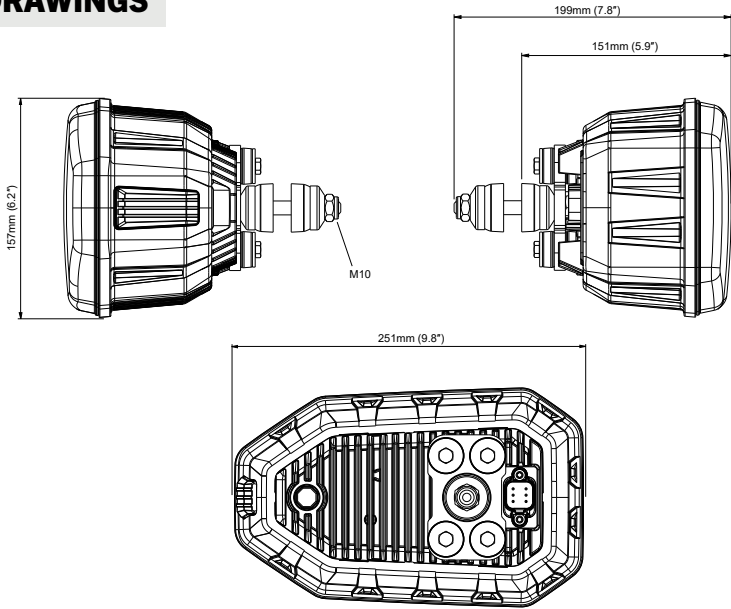


Sculptor 2  
High Beam RHT



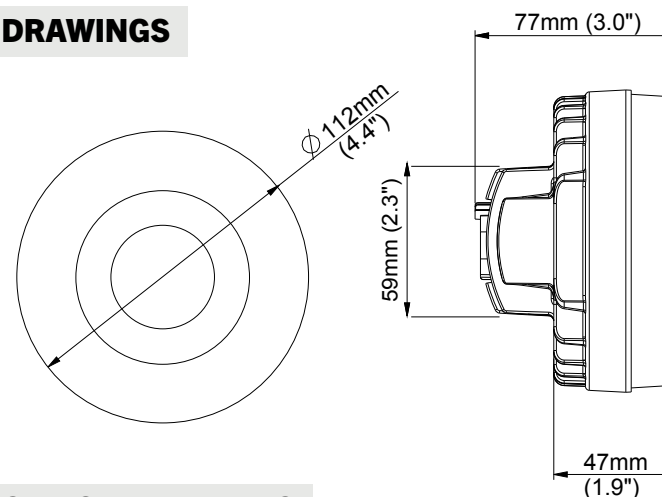
Also available in [LHT](#) and [pedestal mount versions](#), find the details on our website [nordiclights.com/products](http://nordiclights.com/products)

## DRAWINGS

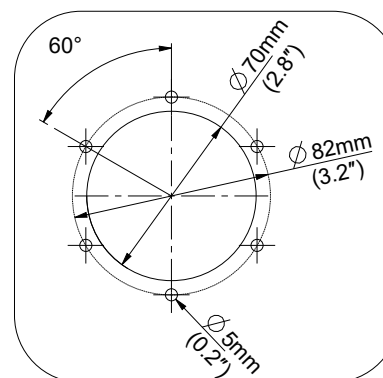




## DRAWINGS



## CUT-OUT DRAWING



Also available with **retroreflector (ECE R23-approved)**, find the details on our website [nordiclights.com/products](http://nordiclights.com/products).

# Corona 400

TECHNICAL SPECIFICATIONS	CORONA 400
Functions	Direction Indicator, Position Light, Stop Light, Reverse Light
Power Consumption 12 / 24V	Direction indicator 21W, Position light 0.2 / 0.5 W, Stop light 1.5 / 3.0 W, Reverse light 2.0 / 4.0 W
ECE Approvals	Direction Indicator: ECE R6 Cat 2a, Position Light: ECE R7 Cat R1, Stop Light: ECE R7 Cat S1, Reverse Light: ECE R2
Material Housing / Lens	Aluminum / Plastic



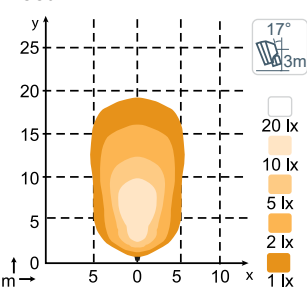


High-quality and cost-effective alternative for basic illumination

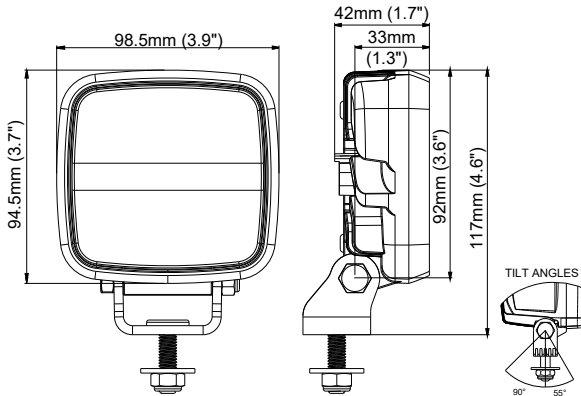


LIGHT PATTERNS

Scorpius GO 410, 1200lm Flood



DRAWINGS



Scorpius GO 410

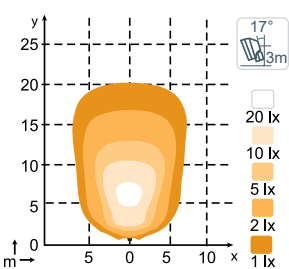
TECHNICAL SPECIFICATIONS	SCORPIUS GO 410
Theoretical / Operational Lumens	1900lm / 1200lm
Power Consumption	18W
Vibration	8Grms 24-2000Hz
Nominal Current	36-48V=0.38A 24V=0.6A, 12V=1.1A

High-quality and cost-effective alternative for basic illumination

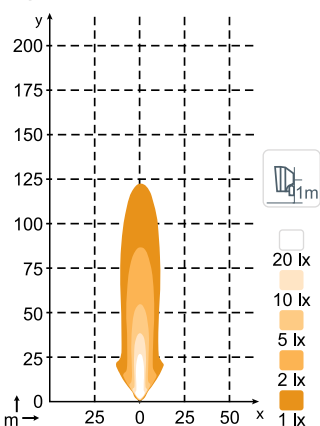


LIGHT PATTERNS

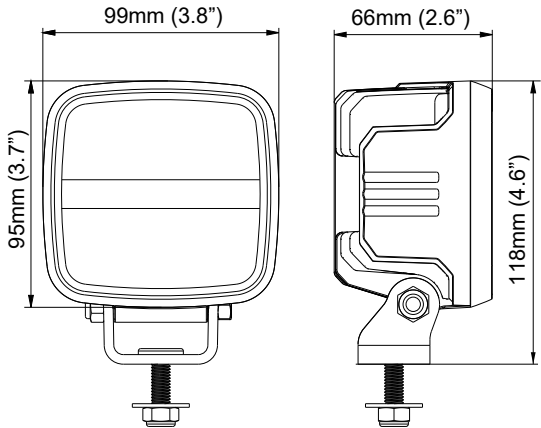
Scorpius GO 420, 2000lm  
Wide Flood



Scorpius GO 420, 2000lm  
High Beam



DRAWINGS



Scorpius GO 420

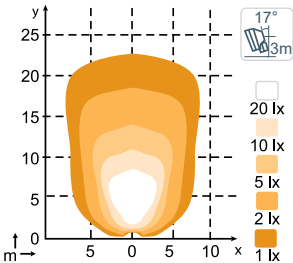
TECHNICAL SPECIFICATIONS	SCORPIUS GO 420
Theoretical / Operational Lumens	3000lm / 2000lm
Power Consumption	29W
Vibration	8Grms 24-2000Hz
Nominal Current	24V=1.05A, 12V=1.85A

High-quality and cost-effective alternative for basic illumination

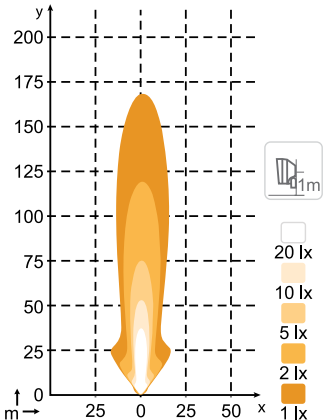


LIGHT PATTERNS

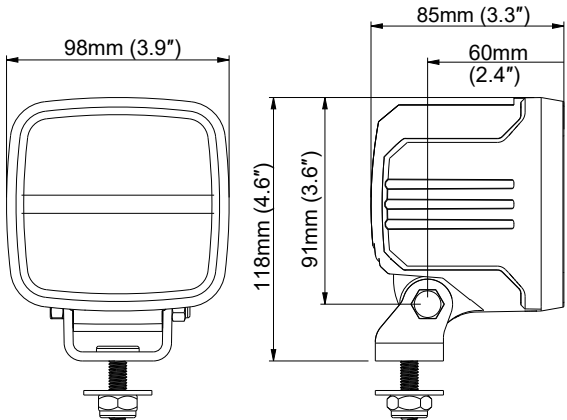
Scorpius GO 430, 3000lm  
Wide Flood



Scorpius GO 430, 3000lm  
High Beam



DRAWINGS



Scorpius GO 430

TECHNICAL SPECIFICATIONS	SCORPIUS GO 430
Theoretical / Operational Lumens	4800lm / 3000lm
Power Consumption	44W
Vibration	8Grms 24-2000Hz
Nominal Current	24V=1.5A, 12V=2.8A

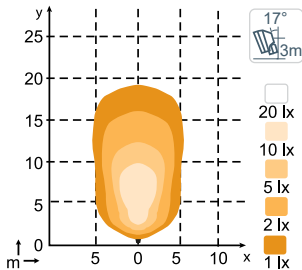


High-quality and cost-effective alternative for basic illumination

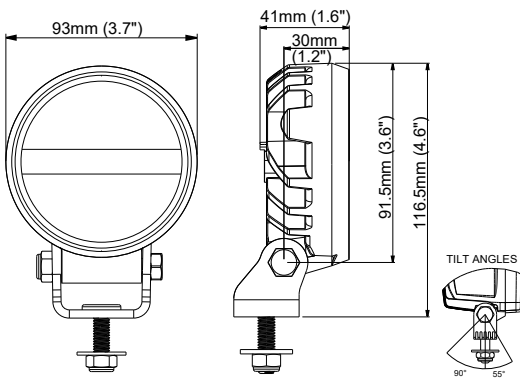


LIGHT PATTERNS

Canis GO 410, 1200lm Flood



DRAWINGS



Canis GO 410

TECHNICAL SPECIFICATIONS	CANIS GO 410
Theoretical / Operational Lumens	1900lm / 1200lm
Power Consumption	18W
Vibration	8Grms 24-2000Hz
Nominal Current	36-48V=0.38A, 24V=0.6A, 12V=1.1A

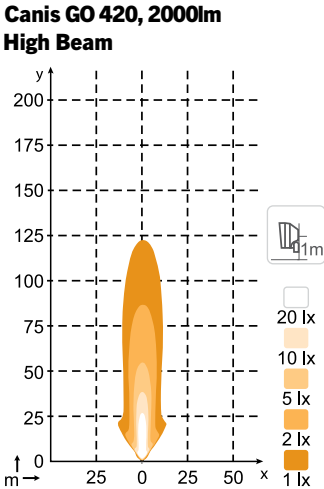
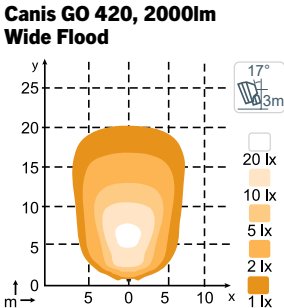
High-quality and cost-effective alternative for basic illumination



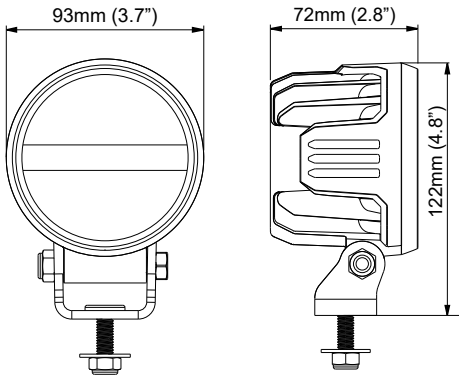
# Canis GO 420

TECHNICAL SPECIFICATIONS	CANIS GO 420
Theoretical / Operational Lumens	3000lm / 2000lm
Power Consumption	29W
Vibration	8Grms 24-2000Hz
Nominal Current	24V=1.05A, 12V=1.85A

## LIGHT PATTERNS



## DRAWINGS





## We create optimal visibility

Nordic Lights was born in the darkness of the harsh Finnish landscape, where the need for illumination came out of pure necessity. During the years, we have learned just what it takes to develop the perfect work lights for construction. No need to worry about which lights fit your specific type of vehicle, we already did the planning for you. We produce world-class simulations to exactly determine which lights are optimal for the specific task and conditions. Our planning is meticulous, and we execute by the same standards. Our knowledge is extensive, yet we learn more with each new case.

For safe and easy maneuvering in demanding conditions, choose NORDIC LIGHTS®.



[nordiclights.com](https://nordiclights.com)

**Nordic Lights HQ**  
**Jakobstad, Finland**

