

Frequently Asked Questions

Who are Nordic Lights?

NORDIC LIGHTS® is one of the leading global suppliers of Heavy Duty LED, HID & Halogen lighting solutions. Our Headquarters, R&D & production assembly facilities are located in Finland. We have offices in China, USA, Germany & Brazil, & a vast network of global distributors. We utilize Six Sigma & Lean methodologies, are certified according to the ISO 9001 & ISO 14001 standards.

What is a Heavy Duty work light?

Heavy Duty work lights are lamps specifically designed to be suitable for use in extremely demanding environments and applications. They are most commonly used to provide illumination of working areas close to the machine to which they are attached. However, some heavy duty lights are also suitable for road and signalling use. They are typically installed on work vehicles operating in the mining, construction, forestry, agriculture, truck & trailer, & emergency industries.

What's the difference between Lumen & Lux?

- A Lumen is the unit of measurement of the complete quantity of light emitted by a light source – the luminous flux.
- Lux is the quantity of luminous flux on a surface. It decreases by the square of the distance (inverse square law) of the surface from the light source: $E(lx) = \text{luminous flux (lm)} / \text{area (m}^2\text{)}$.

What's the difference between Theoretical & Operational lumens?

- Theoretical lumen output cannot be achieved in real life. It is a calculated value showing what would be possible under absolute ideal conditions where no optical, electrical or thermal losses occur in the system. This value can often be 60% higher than the true lumen output.
- Operational lumen output takes thermal, optical & electrical loss into account. It is the true representation of the lumen output from the lamp in real life conditions.

What colour lens is best for use in rain / fog / snow?

Moisture will reflect the shorter wavelength (blue) component of light more easily than longer wavelength colours (yellow, amber). Thus it is commonly thought that lamps with yellow or amber lenses are better for bad weather conditions. However, the amount of glare created is also affected by the relationship of angles between line of sight and the angle of the lamps. When using a lamp with a coloured lens or filter the amount of available light will reduce, affecting visibility & colour definition. A normal lamp with an optimum light distribution pattern & mounting position can produce better results than one with a coloured lens or poor light distribution. Ultimately, the answer to this question lies with how the individual users themselves perceive the illumination.

Why do you have so many different types of LED work light?

An LED is not a standardised light source like a halogen or HID bulb. LED's vary, particularly in physical size & lumen output. This enables flexibility to produce lamp designs suitable for a wide variety of applications & customer requirements. A lamp with lower lumen output typically requires less, or lower powered LED's than a lamp with a much higher output. The lamps physical dimensions, shape & lumen output can be tailored for various situations. Using combinations of lenses & LED's can also create products with identical appearance but with differing light patterns & output.

What is the difference between mounting brackets?

- Aside from the physical dimensions & size of mounting bolts, the main differences are in the material used & their ability to withstand vibration, shock & corrosion.
- Basic brackets are made of steel & have basic shock & vibration resistance.
- Cast brackets have a far greater vibration & shock resilience. They are also more corrosion resistant.
- The best performing brackets in terms of resistance to vibration & shock are our patented Quake Damped brackets available for the Scorpius range of lamps.

What is your warranty?

- 1-year for halogen lamps (not including the bulb).
- 2-years for HID (Xenon) lamps (not including the bulb).
- 5-years for the light output of LED lamps, based on L70.
- The warranty excludes environmental and physical damage to the products.

Why should I buy a Nordic Lights LED work lamp rather than a competitor's equivalent?

- Our lamps are proven to perform reliably in the most demanding of environments all over the world! This is reflected by our continuously high supplier quality ratings, customer feedback, repeat business, & very low customer returns.
- Our comprehensive warranty provides peace of mind that your lamps will continue working for many years without issues.
- We are an approved & preferred supplier to many of the world's leading manufacturers of heavy duty machinery.
- We only use the highest quality components from the most reputable & approved suppliers.
- Our extensive state-of-the-art in-house testing laboratory ensures we can continually & repeatedly confirm the quality, reliability & performance of our designs.
- Every production lamp is functionally checked and operationally tested for over 10-hours prior to being shipped.
- We outperform our competitors by applying the latest & best available technology along with outstanding customer service provided by our well trained, experienced & dedicated personnel.
- Our team has extensive combined knowledge & experience, not only from all areas of the lighting industry (from light sources & lamps through to optics, electronics & control systems), but also from the industries where our lamps are intended for use. This ensures we really know & understand the requirements for light in all its applications. We can help you in a vast range of topics: simulation (light and 3D modelling), optimal positioning of lamp on vehicle, standardizing how much light is needed in different areas, recommend suitable lights, customize lights, studying the vehicle in the terrain, comprehensive testing facilities, as well as with knowledge of regulations.
- We can offer tailor-made solutions to ensure you get the best product for your application. Combinations of different light patterns, brackets, vibration dampeners & cable connections can be applied to optimize a lamp for different applications & a specific set of conditions.
- Our processes are approved to ISO9001, ISO14001 & we utilise six-sigma & Lean methodologies.

What tests are done on your lamps to ensure design robustness & reliability?

- All our lamp designs are exposed to extensive testing before being approved. These tests include: Lumen output & light distribution, vibration and shock, dust & humidity, exposure

to heat & cold, thermal cycling, thermal protection, electro-magnetic compatibility, full functionality, abnormal conditions, chemical resistance, & usability.

- Before delivery, every single production lamp is subjected to full functional testing and is also operated for a minimum of 10 hours to ensure any possible early life faults are identified.

Can your lamps be used in marine applications?

We do not recommend that our lamps are used in marine applications.

What is colour temperature / correlated colour temperature (CCT)?

Colour Temperature refers to an ideal black body radiator. Correlated Colour Temperature refers to a light source whose perceived colour most closely resembles that of a black body radiator.

Correlated Colour Temperature (CTT) describes if the appearance of white light is warm (reddish), neutral or cool (bluish). It is expressed in Kelvin (K). Higher values relate to cooler colours.

What is PWM dimming, & which of your lamps can be dimmed?

PWM stands for pulse width modulation. The average value of voltage (and current) fed to the load is controlled by turning the supply ON and OFF rapidly. The longer the ON period compared to the OFF periods, the higher the total power supplied to the load & thus the brighter the lamp.

What is IP rating?

IP means “Ingress Protection” or “International Protection”. The IP code is defined in standards IEC 60529&DIN 40050. It classifies the degree of protection provided by an electrical equipment enclosure against the intrusion of solid objects & liquids.

Do you have LED lamps where the electronics is fully isolated from the case?

Yes. The Spica & KL ranges have isolated electronics. Also the Scorpius N4410 has electronics that are isolated from the lamp casing.

What are some benefits of halogen?

- Halogen lamps & bulbs are cheap.
- “Warm” light colour feels comfortable.
- Halogen bulbs are standardized.
- Long service life compared to incandescent lamps.
- Immediate full light output.
- Compact size compared to HID.
- Easy to replace.

What is the typical lifetime for different light sources?

- Halogen = 500 hours
- HID (Xenon) = 5,000 hours.
- LED = 50,000 hours.

Does the LED lamp still work if one of the LED chips fails?

Yes. As long as the lamp in question has more than one LED chip. The light output will of course be reduced.

What are some benefits of HID?

Improved visibility due to “cooler” light colour.
More energy efficient compared to halogen.
High light output & wide illumination area.
HID bulbs are standardized.
Less heat generation compared to halogen.
Longer service life than halogen.
Easy to replace.

What are some benefits of LED?

- Energy efficient low power consumption (- 85% compared to other light sources).
- Compact & directional providing design flexibility & no wasted light.
- Unaffected by switching cycles.
- Natural colour temperature (“Daylight”) which is easier on the eyes & results in better, more productive working conditions.
- Very long lifetime compared to other light sources (50,000+ hours).
- Maintenance free. No bulb replacement results in less machine down time & lower maintenance costs.
- Rugged. No vulnerable filament. Lamps can take extreme abuse.
- Starts instantly (Nanoseconds versus minutes - HID).
- Environmentally sound. No hazardous substances (lead/mercury).
- RoHS compliant.
- Very wide operational temperature range.

Are your lamps polarity sensitive?

Yes. Polarity must be observed for correct operation. The “+” & “-“ connections are marked on the lamp.

Are your LED lamps reverse polarity protected?

Lamps are reverse polarity protected to -32VDC.

Are your LED lamps overvoltage protected?

Lamps are over-voltage protected up to 80VDC.

Why is the casing of LED lamps quite warm when LED’s are meant to be cool?

- Low heat generation is a common misconception about LED’s. Any electrical component consuming energy produces heat in some form.
- With LED’s the heat is generated at the base of the LED chip (the LED “junction”) & is directed backwards from the light emitting surface. This is why the lenses of LED lamps are significantly cooler than those of halogen or HID solutions which direct the majority of their heat forwards.
- The temperature of the LED junction is absolutely critical to achieve the optimum lifetime of the LED. Poor LED thermal management will result in dramatic reductions of LED lifetime. Effective cooling of the LED chips is required & achieved by careful design of the metal heatsink (the lamp casing). As heat is dissipated through the casing, the case naturally heats up.

Can I mount lamps in different orientations?

Yes, but optimal lamp cooling is achieved if the heatsink fins are vertical rather than horizontal. It should also be noted that, depending on the lens used, there may be differences in light distribution if a lamp is rotated.

Can an LED lamp replace an HID lamp?

- Yes. Various combinations of LED lamp lumen output & light pattern are available. The correct replacement LED lamp to choose will depend on the application.
- It should be remembered that LED typically have a higher colour temperature than HID. The lamps are more efficient & light is much more directional, resulting in less stray (wasted) light & illumination more accurately directed to the area where it is really required.

Does the “bar” across the centre of the Nordic Lights LED lamp lenses have any effect on the light pattern?

No. The lamps are designed to take the bar into account. The LED's are positioned higher & lower than the bar &, combined with the light guides & lens designs, ensure that the usable light is directed where needed so that the resulting light pattern is exactly as intended.

What is “TellTail” for the Dorado N70?

Due to the low power consumption of the Dorado indicator LED, some vehicles may require an additional electrical load to ensure the circuit functions correctly. The “Tell Tail” is the additional load required by the vehicles system & is included in the lamp assembly.

What is the difference between a lamps Beam angle & Field angle?

- The Beam angle is the angle between the two planes of light where the luminous intensity is 50% of the maximum luminous intensity at the centre of the beam.
- The Field angle is the angle between the two planes of light where the luminous intensity is 10% of the maximum luminous intensity at the centre of the beam