



SIMULATION EXAMPLE

ARTICULATED TRUCK

TWO SIMULATION SET UPS

- 1. ORIGINAL SET UP: HALOGEN LIGHTS 1000 lm**
- 2. NORDIC LIGHTS UPGRADE PACKAGE: PROFESSIONAL**

NORDIC LIGHTS

UPGRADE PACKAGE - PROFESSIONAL

WORK LIGHTS

6 PCS SCORPIUS PRO 445
WIDEFLOOD ASYMMETRIC



POS 1,2

2 PCS KL1401
FLOOD



POS 3

DRIVING LIGHTS

2 PCS BUMBLEBEE
PASSING BEAM

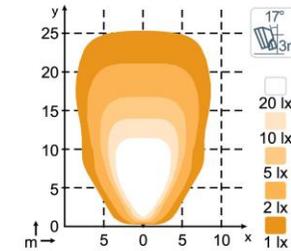


POS 4

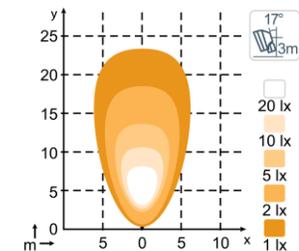
2 PCS BUMBLEBEE
HIGH BEAM

POS 5

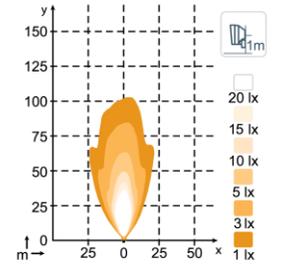
SCORPIUS PRO 445, 4400lm
Wide Flood (Asymmetric)



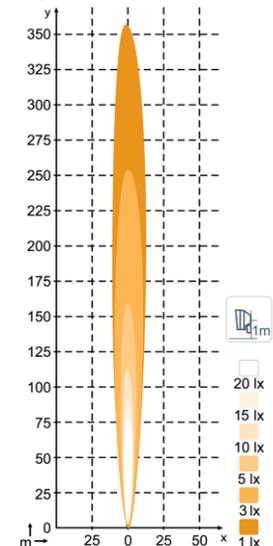
KL1401 2000lm
Flood



BUMBLEBEE
Low Beam (Symmetric)



BUMBLEBEE
High Beam



EQUIPMENT INFO

This simulation can be used as a guideline for
the Articulated Trucks

WEIGHT ~ 20000-30000 kg

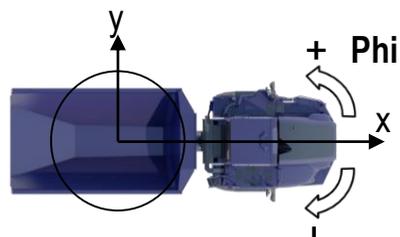
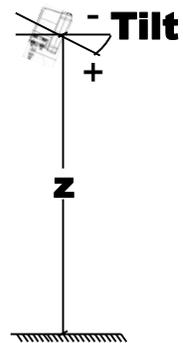
HEIGHT TO THE TOP OF CAB ~ 4000 mm



LAMP POSITIONS

	Lamp L1	Lamp L2	Lamp L3	Lamp L4	Lamp L5
Tilt	0°	0°	0°	0°	0°
Phi	0°	0°	170°	0°	0°
z	1.55m	1.70m	1.25m	1.20m	1.20m

	Lamp R1	Lamp R2	Lamp R3	Lamp R4	Lamp R5
Tilt	0°	0°	0°	0°	0°
Phi	0°	0°	-170°	0°	0°
z	1.55m	1.70m	1.25m	1.20m	1.20m



ORIGINAL SETUP
6 PCS HALOGEN LIGHTS 1000 lm

WORK LIGHTS ON

WORK LIGHTS ON



WORK LIGHTS ON



WORK LIGHTS ON



NORDIC LIGHTS
UPGRADE PACKAGE – PROFESSIONAL

WORK LIGHTS ON

WORK LIGHTS ON



WORK LIGHTS ON



WORK LIGHTS ON



NORDIC LIGHTS
UPGRADE PACKAGE – PROFESSIONAL

DRIVING LIGHTS ON

LOBEAM DRIVING LIGHTS ON
&
REAR LIGHTS ON



**LOBEAM DRIVING LIGHTS ON
&
REAR LIGHTS ON**



**LOBEAM DRIVING LIGHTS ON
&
REAR LIGHTS ON**



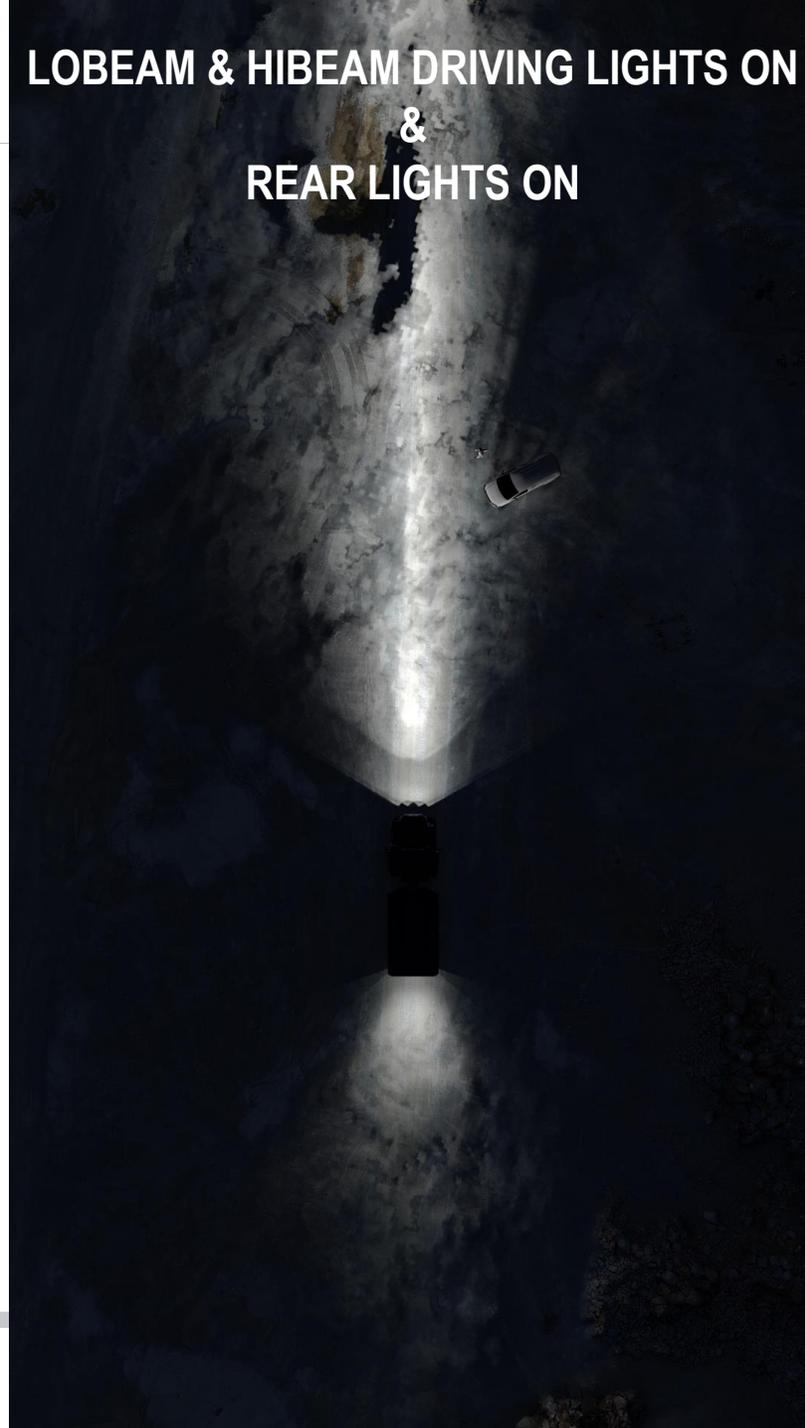
LOBEAM & HIBEAM DRIVING LIGHTS ON
&
REAR LIGHTS ON



**LOBEAM & HIBEAM DRIVING LIGHTS ON
&
REAR LIGHTS ON**



**LOBEAM & HIBEAM DRIVING LIGHTS ON
&
REAR LIGHTS ON**



 **COMPARISON**
HALOGEN – NORDIC PROFESSIONAL



BENEFITS OF THE UPGRADE PACKAGES

HALOGEN – NORDIC BASIC – NORDIC PROFESSIONAL



		HALOGEN	BASIC	PROFESSIONAL
Mechanical	Lifetime of the lamp	500 h	30000-50000h	30000-50000h
	Durability	Very Low	High	Extremely High
Cost related	Maintenance free	No	Yes	Yes
	Lifetime maintenance cost	Very High	No cost	No cost
	Energy efficiency	Very Low	Very High	Very High
Light related	Physical effect of Colour temperature	Relaxing	Productive	Productive
	Even light distribution without high contrasts	No	Yes	Yes
	Light distribution according to general recommendation on work area	No	Yes	Yes
Workers Safety & Well being	Operators Visual Ergonomics	Fair	Good	Maximum
	Ability to Work Effectively	Fair	Good	Maximum
	Safety for operator & workers near area	Fair	Good	Maximum

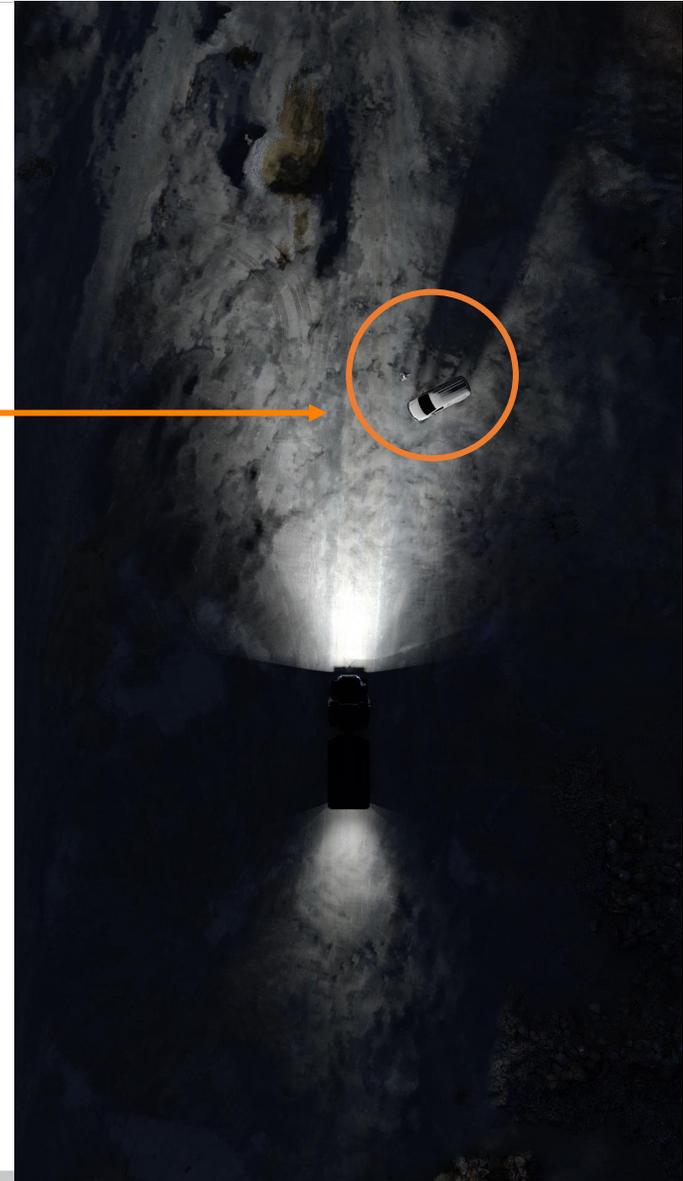
	EXPLANATION
Lifetime of the lamp	How long time light source approximately withstand
Durability	Halogen lamp shock and vibration resistant is very poor. LEDs shock and vibration proof are very high
Maintenance free	LED light source is maintenance free, halogen light source need to be changed approximately after every 500 hours
Lifetime maintenance cost	If equipment is not doing productive work due to maintenance, it will cost lot of money
Energy efficiency	Light / Watt ratio with halogen light is around 20-30 lm/W. LEDs up to 100 lm/W. When less power is used on lighting leads to less power consumption on equipment
Physical effect of Colour temperature	Higher colour temperature is more bluish, which can keep operator active. Colour temperature of halogen lights 3200K and LEDs 5000-5700K
Even light distribution without high contrasts	With LEDs optics can be designed optimally to make the wanted light pattern. Halogen work lights light pattern is narrow with sharp edges between dark and illuminated area.
Light distribution according to general recommendation on work area	Light level for the work area is around 10-20 lux up to 20 meters. Operator can see clearly on work field.
Operators Visual Ergonomics	Even and sufficient light level provides optimal visual ergonomics for the operator. This includes no glare, no eye irritation, no eyestrain which can lead to headache
Ability to Work Effectively	Light intensity is high enough to see clearly, work faster and avoid mistakes
Safety for operator & workers near are	Operator can see all the obstacles clearly



Safety
Obstacles can be seen clearly

Even light distribution

- Operator can see clearly
- Good for visual ergonomics
- Increase effectiveness



UPGRADE PACKAGE ORDER INFORMATION

SCORPIUS PRO 445
WIDEFLOOD ASYMMETRIC

Nordic Lights item code: 6 pcs 984-703B



KL1401
FLOOD

2 pcs 982-802B



Working lights total 1426 €

BUMBLEBEE
HIBEAM
LOBEAM SYMMETRIC

2 pcs 960-xxx
2 pcs 960-xxx



Driving lights total 996€