NORKA

LIGHT FOR FOOD AND BEVERAGES

Optimum illumination solutions for the food and beverage industry

LIGHTING FOR FOOD? THAT'S NO PICNIC.

In food production and packaging, the minimisation of the risk of product contamination and the provision of the customer with a safe product are vital. In the process, the lighting of the production and packaging environments also plays a role in case of the following: Splinters or small parts that can be lost have no place in a food environment. High colour rendering guarantees a proper visual inspection of the food. Frequent cleaning of the production equipment to avoid contamination by bacteria or viruses is also required.

Food production and storage consists of warm and cold, dusty or moist environments, including those that can be a challenge to illuminate. The right lighting is still required for each work step to ensure hazard-free processes.

Food/beverage production 16

Slaughterhouses 18

High temperature 20

LIGHTING REQUIREMENTS

04

Increased caution in the case of raw goods
High demands are placed on the environment during the processing and storage of raw goods. To avoid contamination of any kind, special care must be taken.

06

Hygiene and cleaning
Hygiene is paramount in food production: Easy cleaning is essential; increased chemical resistance to cleaning agents extends the service life of the luminaire.

Suitable for the IFS Food standard
Many of our luminaires are compliant with IFS or HACCP. Declarations of conformity can be found at norka.com.

Overview of IFS conformity 26

HACCP AS A PART OF IFS
IFS, a conglomerate of commercial and industrial companies, sets international standards for production and services in various industries: from food production and logistics to the manufacturing of packaging materials or personal care products. These standards are developed and recognised by trade and industry to ensure maximum product safety. To meet the IFS Food standard, for example, the HACCP concept must be applied.

CONFORMITY FROM START TO FINISH
IFS Food certification is often demanded as a requirement for food suppliers. HACCP and IFS requirements not only apply to the IFS-certified company itself, but also to suppliers of equipment, machines or packaging materials.

Cold store 24

Fresh foods storage 22

14

Energy savings
LEDs already save a lot of energy in comparison with conventional luminaires. Combined with a lighting control system, the potential savings of LED luminaires are ideally exploited.

12

Special atmospheres
The atmosphere of the surrounding must be taken into consideration: Depending on the chemical composition, an **increased resistance of the luminaires to various chemical substances** or even **explosion-proof versions** are required.

10

Ambient temperature
Extreme temperatures are common in food production, be it the processing of frozen products or heating to extend the shelf life, which can also affect the ambient temperature.

08

Colour rendering for quality assurance
A high colour rendering index (CRI) is the basis for neutral colour perception and therefore for the quality assurance process.

Unpackaged food
Unpackaged food poses a particular challenge: Injuries caused by contaminants in food can have serious consequences. Great care must therefore be taken when handling unpackaged goods, including lighting.

“UNPACKAGED” MEANS: PARTICULARLY DEMANDING

Risk of breakage minimised
To prevent contamination, luminaires should be secured with a splinter guard or the mounting procedure should be performed in such a way that the risk of breakage is minimised.

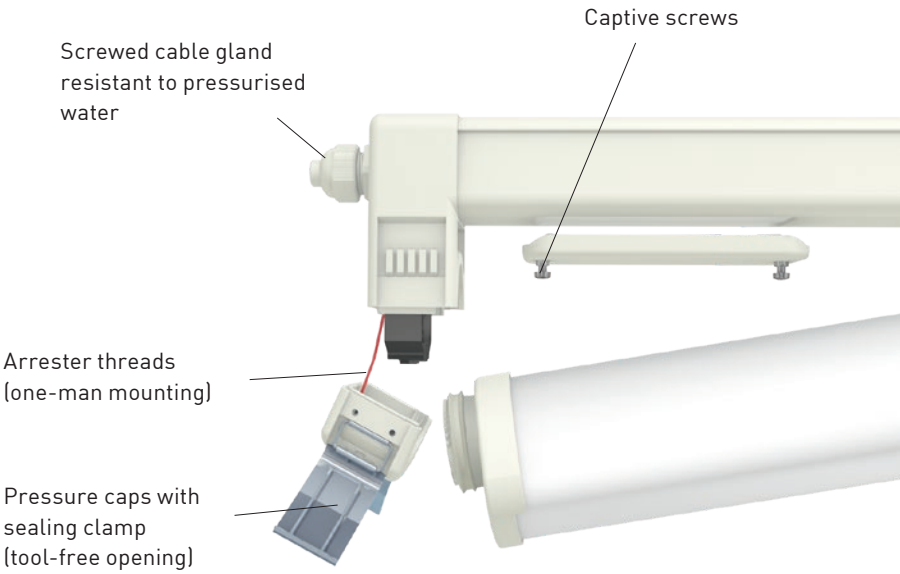
The use of fracture proof materials lends itself particularly well here. Our profiles made of fibreglass-reinforced polymer and polycarbonate minimise the risk of contamination.

Hygiene and cleaning
The installed luminaires must be able to withstand aggressive cleaning agents and high-pressure cleaning. The design should simplify cleaning.

NORKA offers luminaires with high protection ratings and special coatings. As a result, the luminaires are long-lasting and survive regular cleaning with ease.

Captive components
Luminaire components should not be able to contaminate the goods. Here, captive components increase safety.

Norka designs use captive screws or arrester threads to provide extra safety during mounting and maintenance.



CONSTANTLY IN USE: THANKS TO THE HIGH PROTECTION RATING AND KNOW-HOW

To safeguard hygienic standards, regular cleaning is obligatory. Luminaires with the right design start this process much earlier: Due to their texture and shape, they already provide a smaller contact surface for dust and bacteria, as well as being easy to clean.

HIGH PROTECTION RATINGS
Lighting with a high protection rating is indispensable for frequent cleaning. Our luminaires have a minimum protection rating of IP65. This means that they are intrinsically protected against dust and water jets. Many of our luminaires for the food and beverage industry, however, especially for the area of production, also comply with a higher protection rating: IP69K.

IP69K: THOROUGH TESTING
Intensive cleaning with a high-pressure cleaner requires stability and a high seal tightness to protect the internal electronics. Protection class IP69K is required for consistent pressure resistance: Here, the waterproofness of the products is tested with +80 °C water at 100 bar.

IP69K luminaires are tested for waterproofness with 80 °C water at a pressure of 100 bar.

CLEANING AGENTS – AN UNSEEN DANGER FOR YOUR LIGHTING

On the one hand, cleaning with cleaning agents removes dangerous bacteria and dirt, thereby ensuring greater safety in food production. On the other hand, cleaning agents can also become a hazard for the lighting system by chemically attacking the construction materials of the luminaires, among other things. Over time, the stability of the housing deteriorates, the polymers wear out faster and age resistance is reduced. - Consequences of damaging influences and impermissible stress.

An increased resistance to cleaning agents is therefore essential. In this situation, an additional coating of the luminaire can help. Thanks to our know-how about difficult environmental conditions and our experience in the food processing industry, we are familiar the resistance of our materials to various chemicals and cleaning agents and are therefore able to give you the best advice.

Information on the resistance of our materials can be found in our main catalogue. Please contact us for more information!

JUST THE RIGHT LIGHT

Are there any discolourations? Is the colour right? – The visual assessment of a product is one aspect of quality control in the food processing industry. It can be a sign of quality for milk or meat processing, for example. Discolourations can indicate incorrect nutrition or even diseases in the animals. Fruit and vegetables are classified in different quality categories and degrees of ripeness depending on their colouring.

THE RIGHT COLOUR – A QUESTION OF LIGHT QUALITY

This requires the right light, however, because the colour impression depends on the spectral distribution of the light source. Wavelengths that are missing in the spectrum can therefore not be perceived in the colour evaluation. For a neutral evaluation of colour, the light source must therefore have particularly good colour rendering properties. This is referred to as a high colour rendering index (CRI).

Pure sunlight achieves the ideal colour rendering index with a CRI of 100. Most of our LED luminaires achieve CRI values over 80. Higher CRI values are also available on request, however.

Application	Illumination Level	CRI	Special requirements
Colour inspections	1000 lx	>90	Very good colour rendering CRI > 90-100 at 4000 K – 6500 K
Meat inspection at control point	500 lx	>80	Very good colour rendering CRI > 90-100 at 5000 K
Garnishing, sorting, decorating	500 lx	>80	Very good colour rendering CRI > 90-100 at 5000 K
Production of delicatessen food products	500 lx	>80	Very good colour rendering CRI > 90-100 at 5000 K
Inspection of jars and bottles	500 lx	>80	Possibly very good colour rendering CRI > 90-100 at 5000 K
Laboratories	500 lx	>80	Possibly very good colour rendering CRI > 90-100 at 5000 K note chemical resistance if applicable
Product inspection	500 lx	>80	Possibly very good colour rendering
Delivery area	200 lx	>80	Motion-controlled, if required; Cold storage: Cold-resistant luminaires
Workstations and zones on malting floors in breweries	200 lx	>80	
Workstations and zones in sugar factories	200 lx	>80	
On filtering floors in sugar refineries	500 lx	>80	
Loading and operating of conveyors and machines	200 lx	>80	
Production of cigars and cigarettes	500 lx	>80	
Cooking (e.g. in canning and chocolate factories)	200 lx	>80	Heat-resistant luminaires
Storage rooms	100 lx 200 lx if permanently occupied	>60	Motion-controlled, if required; Cold storage: Cold-resistant luminaires
Storage rooms for same or large size items	50 lx	>60	Motion-controlled, if required; Cold storage: Cold-resistant luminaires
Production in cold kitchen	500 lx	>80	Note chemical resistance if applicable
Production in hot kitchen	500 lx	>80	In exposed areas, e.g. frying: Heat-resistant luminaires; observe the chemical resistance if applicable
Dispatch and packaging areas	300 lx	>60	

(Most values based on DIN EN 12464-1: 2011)

EXAMPLES OF THE ILLUMINATION LEVEL AND CRI VALUE

A minimum CRI of 80 is required in most applications. In addition, further requirements can be added: Extreme temperatures or increased chemical resistance, as well as the possibility of lighting control.

A very good colour rendering is necessary for a neutral colour evaluation. Only then can the desired product quality be guaranteed.

FROM ICE COLD TO BOILING HOT

Very different ambient and room temperatures are sometimes common in the food processing industry: When steam cookers are opened, 100 °C steam escapes, rises to the ceiling and heats the air and luminaires. Two halls further is a cold store with -28 °C in which packaged deep-frozen goods are stored. These two extremes place high demands on lighting.

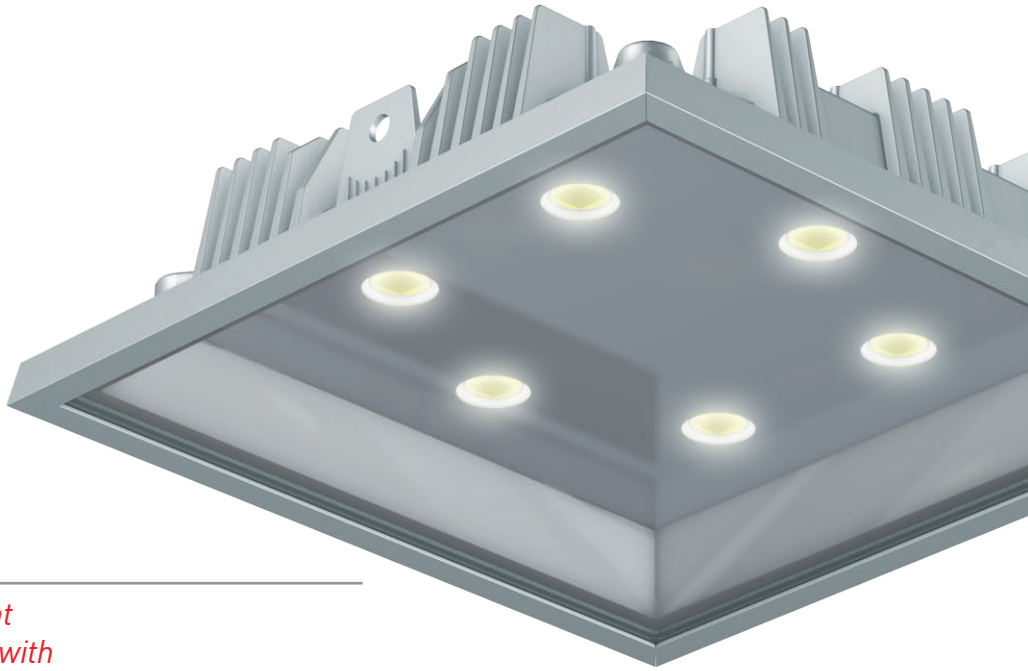
A CLOSER LOOK AT SERVICE LIFE
Both extremely low and very high temperatures can cause problems for electronic components and LEDs.

Here, an examination of the manufacturer's service life specifications is worthwhile.
The specified service life of a NORKA luminaire always refers to the overall concept of the luminaire. Most of our LED products have a service life of L80 B10 > 60,000 hours at the specified continuous ambient temperature. Deviating service lives must be specified separately.

In plain language, this means: Our LED luminaires can be constantly operated in the designated temperature range. Short-term excess temperatures have no impact.

If the luminaire is mainly operated below the maximum temperature, the service life is usually even extended.

BITBURG LED EXTREME: Deep-freeze temperatures down to -40 °C are no problem for BITBURG LED EXTREME. At the same time, the luminaire is ideally suited for the HACCP concept.



Even rooms with higher ambient temperatures can be equipped with LED luminaires: CENTAURUS VHT can be used up to +85 °C.

The BREMERHAVEN LED VHT is designed to operate permanently at an ambient temperature of +90 °C.

EXPLOSION HAZARD, AMMONIA, AND MORE – ATMOSPHERE AS A CHALLENGE

EX-PROOF LUMINAIRES
Flammable gases, fumes and dust are a hazard in production and work areas. If an unfavourable mixture of oxygen and a flammable substance comes together, only one more ignition source is needed to trigger an explosion – an electrical pulse can ignite the air.

Additionally, when it comes to food production, there are always areas in which the risk of an explosion cannot be ruled out. Otherwise seemingly inconspicuous flour can go up in smoke in no time. Other finely ground foods such as cocoa and coffee are also potential sources of danger.

In these areas, all electrical equipment – including lighting – must be designed accordingly to minimise explosion hazards.
For this purpose, we offer luminaires that have been approved according to ATEX 94/9/EC for zones 2 and 22.

During the cultivation of button mushrooms, a very high humidity arises at some points in time. The dung breeding ground also influences the atmosphere.

RESISTANCE TO AMMONIA AND CHEMICALS AT HIGH HUMIDITY
Vegetables are grown on large farms under artificial atmospheres.
This includes enriched fertile soil with natural or chemical fertilisers and artificially generated seasons to allow for best possible plant growth.

Mushrooms, for example, require soil consisting of approx. 90% horse manure and 10% chicken droppings. Best possible growth of the fruiting bodies starts in the first six days at approx.
25 °C and approx. 25 l of water per square metre. Before new fruiting bodies are moved in to the so-called cells, these are steamed at 70 °C for several hours. This special area of application is subject to permanently high humidity levels with added ammonia and strong short-term temperature fluctuations.

NORKA has been addressing these requirements for many decades with balanced thermal management within the luminaire and a short sealing system made of age resistant, form retaining silicone/synthetic rubber.
In addition to this, all materials are particularly resistant to aggressive atmospheres.

THE EXTRA DOSE OF ECONOMY

A lighting control system can save energy in many areas. Whether dependent on daylight or motion, such systems reduce the running time of the luminaires used and not only provide savings in terms of kilowatt hours, but also more comfort.
Our XARA® lighting control system stands for e**X**tended **A**pplication **RA**nge. In the process, our lighting control system meets the same requirements as our luminaires: long-lasting, efficient and robust.

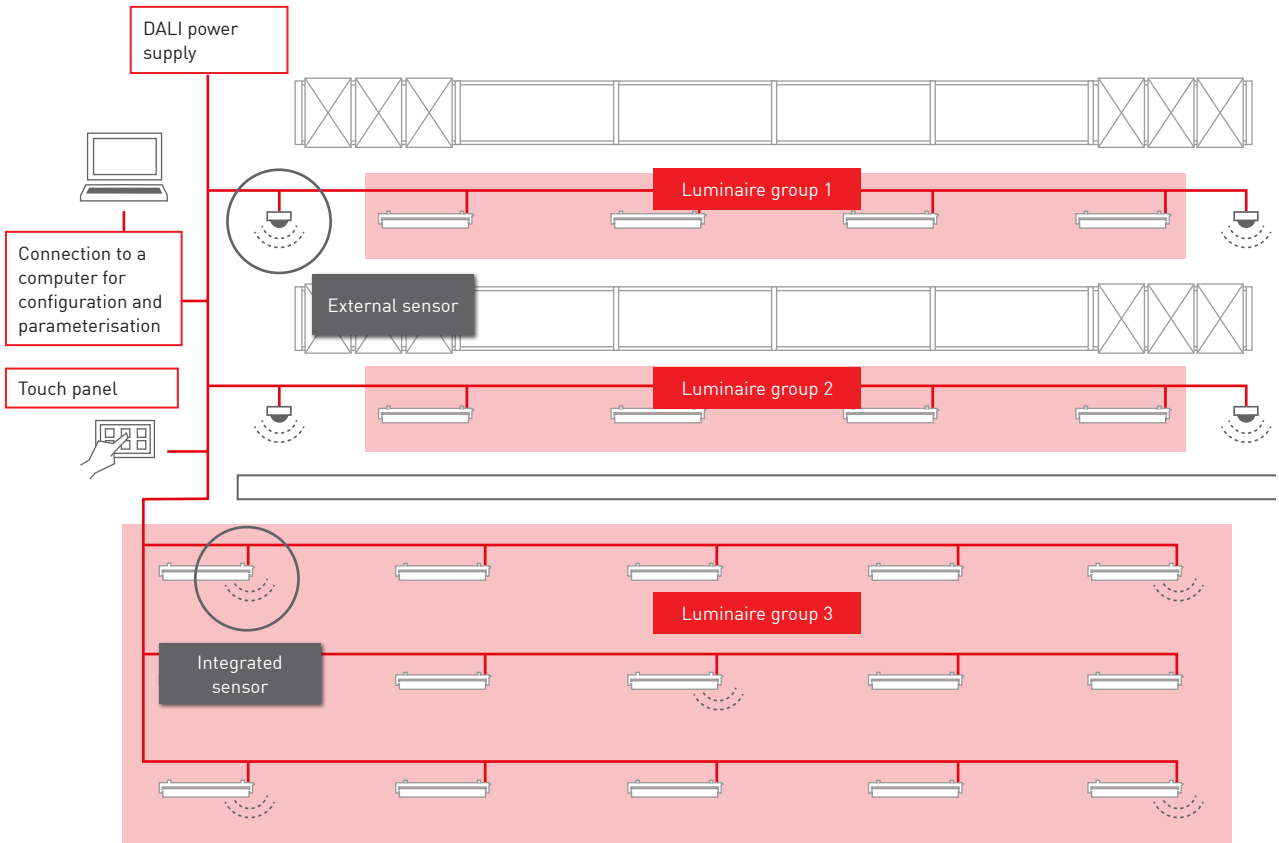
Motion-dependent lighting control can be beneficial especially in areas that are not permanently occupied. In our simple example, a cold storage warehouse with an adjacent production hall is examined. The cold storage warehouse consists of several storage aisles. An external sensor is located at each entrance to a storage aisle. If a sensor at the beginning or end of an aisle detects motion, the luminaire group of this area switches on, for example, luminaire group 1. If motion is detected again within the defined follow-up time, however, the follow-up time is extended accordingly. After that, the lighting of the corresponding area is reduced to a lower level or switched off entirely if desired.

The adjacent production hall is also included in a luminaire group (luminaire group 3). In this case, sensors are integrated into the luminaires evenly throughout the room. If motion is detected, the lighting is increased to a preset illumination level. If none of the sensors detect motion for a given time, the illumination level is reduced again.

A touch panel to switch the lighting groups individually is also available for the central control of the lighting.

According to this principle, unused areas remain in the dark and therefore consume less or even no energy.

Further information about XARA® and lighting control can be found on our homepage. If you are interested, please contact us!



LIGHT EVEN WHEN NOTHING IS WORKING

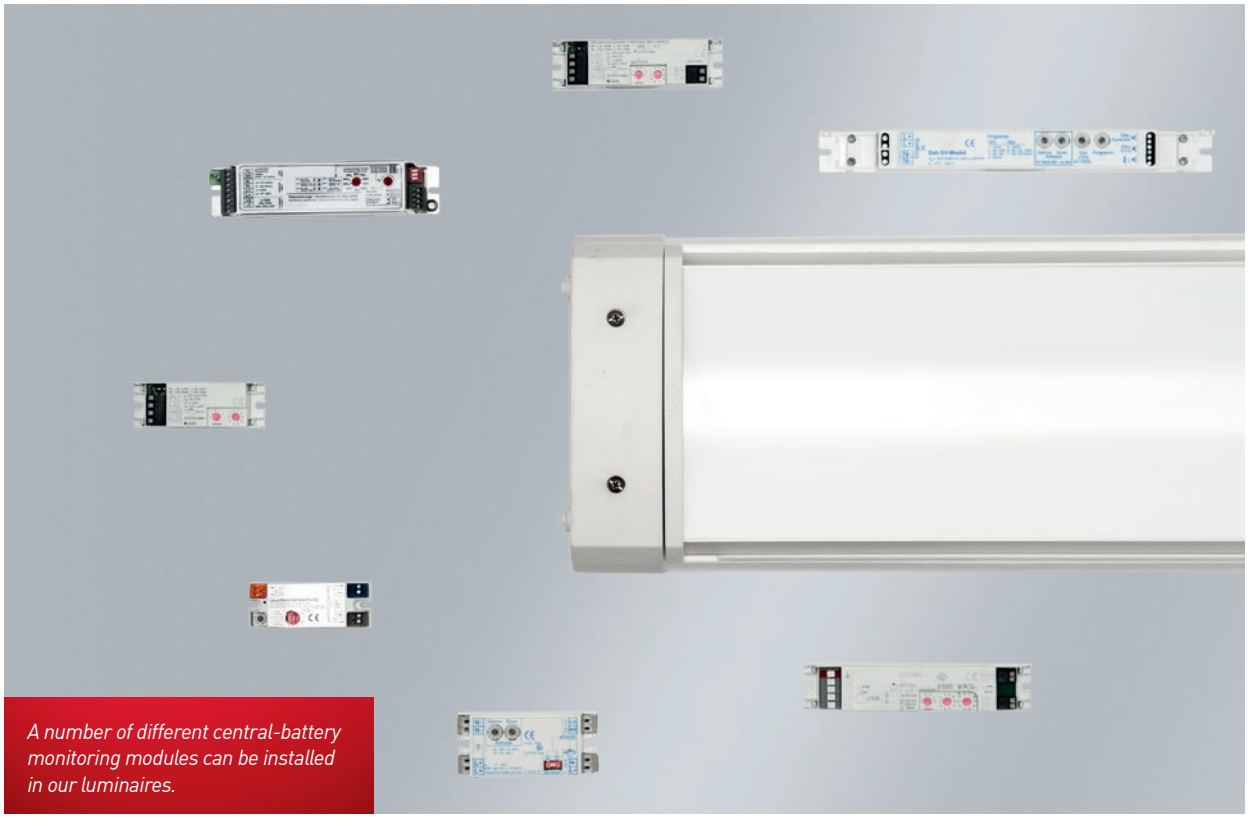
Power failure and total darkness – What can usually be handled at home without major issues presents even greater problems in the working world. To avoid injuries, sufficient visibility for employees must be guaranteed at all times. Emergency lighting comes into play here: safety lighting makes it possible for employees to leave their workstations in case of emergency without danger.

IFS-CERTIFIED LUMINAIRES – ALSO AVAILABLE AS CENTRAL-BATTERY EMERGENCY LUMINAIRES

Almost all our luminaires can be operated on central battery systems using the "Emercency Lighting" option. Our luminaires, which are especially designed for food and beverage production, can also be integrated into an emergency lighting system.
To enable the necessary testing and monitoring of emergency luminaires, a monitoring module suitable for the selected emergency lighting system can also be installed in many luminaires on a project-specific basis.

SINGLE-BATTERY EMERGENCY LUMINAIRES

If no centrally supplied emergency lighting system is required, COBURG LED supports you as a single-battery emergency luminaire. Depending on the project, however, also other luminaires can be manufactured as single-battery versions.



A number of different central-battery monitoring modules can be installed in our luminaires.

OUR SOLUTIONS FOR THE FOOD AND BEVERAGE INDUSTRY

The following pages contain our recommendations for different areas in the food and beverage industry.

FOOD AND BEVERAGE PRODUCTION

Hygiene has top priority, especially in production. Fracture proof, easy to clean and waterproof are the minimum requirements on production area lighting.

IP 65 | IP 66 | IP 67 | IP 69K | IK 09 PC

BITBURG LED

- Suitable for deep-freeze areas
- Suitable for areas with raw goods
- IFS Declaration of Conformity available
- With coating for increased resistance to cleaning agents in the standard version
- Suitable for cleaning with a high-pressure cleaner
- Swivelling reflector tube
- Captive end caps

IP 65 | IP 66 | IP 67 | IP 68 20m | IP 69K | IK 10 PC

ZUG LED

- Suitable for areas with raw goods
- IFS Declaration of Conformity available
- Suitable for cleaning with a high-pressure cleaner

IP 65 | IK 09 PC

ERFURT LED

- Suitable for deep-freeze areas
- Suitable for areas with raw goods
- IFS Declaration of Conformity available
- Swivelling reflector tube
- Captive end caps

IP 65 | IK 08 PC

MÜNCHEN LED

- Suitable for deep-freeze areas
- Suitable for areas with raw goods
- IFS Declaration of Conformity available
- Captive end caps

IP 65 | IP 66 | IP 67 | IP 68 20m | IP 69K | IK 10 PC

BERN LED

- 24 V version suitable for deep-freeze areas down to –40 °C
- Suitable for areas with raw goods
- IFS Declaration of Conformity available
- Suitable for cleaning with a high-pressure cleaner

SLAUGHTERHOUSES

Slaughterhouses must be approved in accordance with hygiene regulations and therefore fulfil HACCP guidelines. The main focus here is on the cleaning options.
Cleaning with high-pressure cleaners with additional cleaning agents in some cases puts high demands on seal tightness and the lighting materials. Protection rating IP69K guarantees that you will enjoy your lighting for a long time, even if the environment requires frequent cleaning.

IP 65 | IP 66 | IP 67 | IP 69K | IK 09 PC

BITBURG LED

> Suitable for deep-freeze areas
> Suitable for areas with raw goods
> IFS Declaration of Conformity available
> With coating for increased resistance to cleaning agents in the standard version
> Suitable for cleaning with a high-pressure cleaner
> Swivelling reflector tube
> Captive end caps

IP 65 | IP 66 | IP 67 | IP 68 20m | IP 69K

LUGANO

> Gas-tight luminaire for special requirements
> Suitable for cleaning with a high-pressure cleaner

IP 65 | IP 66 | IP 67 | IP 68 20m | IP 69K | IK 10 PC

ZUG LED

> Suitable for areas with raw goods
> IFS Declaration of Conformity available
> Suitable for cleaning with a high-pressure cleaner

HIGH-TEMPERATURE

In addition to the typical requirements in the food processing industry, such as a high protection rating and easy cleaning, particularly high temperatures are also a challenge for luminaires in some areas. Hot vapours or grease can cause problems with the lighting.

Special robustness against high temperatures is required because ambient temperatures in particular influence the service life of the LED.

IP 65 | IP 66 | IP 67 | IP 68 1m | IK 09 PC

BREMERHAVEN LED

- Versions up to +90 °C available
- Suitable for areas with raw goods
- IFS Declaration of Conformity available

IP 65 | IP 66 | IP 67 | IP 69K | IK 09 PC

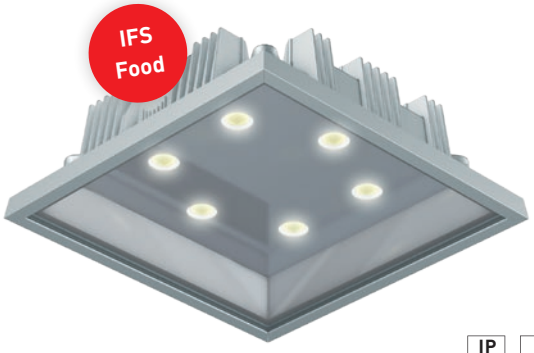
BITBURG LED EXTREME

- Suitable for ambient temperatures up to +65 °C
- Suitable for areas with raw goods
- IFS Declaration of Conformity available
- With coating for increased resistance to cleaning agents in the standard version
- Suitable for cleaning with a high-pressure cleaner
- Swivelling reflector tube
- Captive end caps

IP 65 | IK 09 PC

ERFURT LED EXTREME

- Suitable for ambient temperatures up to +65 °C
- Suitable for areas with raw goods
- IFS Declaration of Conformity available
- Swivelling reflector tube
- Captive end caps



IP 65 | IK 09 PC

CENTAURUS

- Very high temperature (VHT) version for ambient temperatures up to +85 °C
- IFS Declaration of Conformity available

FRESH FOODS STORAGE

Many foods are best stored in a temperature range between +2 °C and +8 °C. In this case, storage takes place in so-called fresh foods storages. In some cases, an increased air humidity is also needed to maintain the quality of the goods.
Due to goods that are unpacked and unprocessed to some extent, such as vegetables, the warehouse must be able to be easily cleaned.

IP 65 | IK 09 PC

ERFURT LED

> Suitable for deep-freeze areas down to -25 °C
> Suitable for areas with raw goods
> IFS Declaration of Conformity available
> Swivelling reflector tube
> Captive end caps

IP 65 | IK 08 PC

MÜNCHEN LED

> Suitable for deep-freeze areas down to -25 °C
> Suitable for areas with raw goods
> IFS Declaration of Conformity available
> Captive end caps

IP 65 | IP 66 | IP 67 | IP 68 20m | IP 69K | IK 10 PC

ZUG LED

> Suitable for areas with raw goods
> IFS Declaration of Conformity available
> Suitable for cleaning with a high-pressure cleaner

IP 65 | IP 66 | IP 67 | IP 68 20m | IP 69K | IK 10 PC

BERN LED

> 24 V version suitable for deep-freeze areas down to –40 °C
> Suitable for areas with raw goods
> IFS Declaration of Conformity available
> Suitable for cleaning with a high-pressure cleaner

COLD STORE

Lighting in deep-freezes area must often work reliably at temperatures down to -24 °C. In some areas, a temperature of -35 °C is usual. Here, lighting must primarily perform two functions: consume as little electricity as possible whilst producing as little heat as possible and defying the challenging circumstances in the long run thanks to high-quality electronics.

IP 65 | IK 09 PC

ERFURT LED

> Suitable for deep-freeze areas down to -25 °C
> Suitable for areas with raw goods
> IFS Declaration of Conformity available
> Swivelling reflector tube
> Captive end caps

IP 65 | IP 66 | IP 67 | IP 68 20m | IP 69K | IK 10 PC

ZUG LED

> Suitable for areas with raw goods
> IFS Declaration of Conformity available
> Suitable for cleaning with a high-pressure cleaner

IP 65 | IK 09 PC

CENTAURUS

> Suitable for deep-freeze areas down to -35 °C
> Suitable for high ceiling heights
> IFS Declaration of Conformity available

IP 65 | IP 66 | IP 67 | IP 68 20m | IP 69K | IK 10 PC

BERN LED

> 24 V version suitable for deep-freeze areas down to –40 °C
> Suitable for areas with raw goods
> IFS Declaration of Conformity available
> Suitable for cleaning with a high-pressure cleaner

IP 65 | IK 09 ESG | IK 09 PC

POLARIS

> Suitable for deep-freeze areas down to -35 °C
> Four different beam characteristics

OVERVIEW OF IFS CONFORMITY
According to production area

We have an IFS Declaration of Conformity for many of our luminaires for the food processing industry. The following provides an overview of which product is intended for which production area according to the declaration of conformity.

Many of our luminaires are **compliant** with **IFS or HACCP**. Declarations of conformity can be found on our website norka.com.

Production area	**Luminaire family**	**Material/diffuser used**
Handling of raw goods or unpackaged products Additional intensive cleaning processes **with cleaning agents**.	BITBURG LED	PC
	ZUG LED **with additional coating to increase resistance to cleaning agents, acids or bases**	PC
	BERN LED **with additional coating to increase resistance to cleaning agents, acids or bases**	PC
Handling of raw goods or unpackaged products Additional intensive cleaning processes using high-pressure cleaners	BITBURG LED	PC
	ZUG LED	PC
	BERN LED	PC
Handling of raw goods or unpackaged products	ERFURT LED	PC
	MÜNCHEN LED	PC
	BREMERHAVEN LED	PC
Packaging and storage of raw goods	ERFURT LED	PC
	MÜNCHEN LED	PC
	BREMERHAVEN LED	PC
Storage of packaged finished products	CENTAURUS	PC, PMMA, single pane safety glass
	ERFURT LED	PC, PMMA
	MÜNCHEN LED	PC, PMMA

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