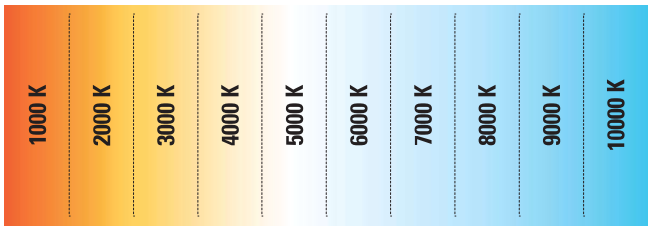
TECHNICAL GLOSSARY

PRODUCT FEATURES TERMINOLOGY

The lighting industry uses an unique terminology to describe product features in general, and the advent of LED technology requires adequate understanding of these terms. This brief glossary intents to clarify the most relevant points raised when switching over former technologies to LED luminaires.

CCT

Colour correlated temperature (CCT) is a gauge of how yellowish, white or blueish is the colour of light that a fitting emmits. It is measured in K (Kelvin) and our product range offers options from 2700K to 5000K. Industrial applications commonly requires CCTs varying from 3000K to 5000K, providing comfortably illuminated areas to operators.



CRI

Colour rendering index (CRI) is a qualitative measurement that demonstrates how accurately colours are reproduced when exposed to determined light source. Ranging from 0 to a max of 100, CRI is directly related to HSE, as industrial environments often present critical signalization that must be properly regarded by operators. R STAHL linear LED luminaires offer CRI >80 across the range.

Low CRI

CRI 80

INRUSH CURRENT

LED luminaires are powered by an electronic drivers, that when turned on drain high-currents for a fraction of time. It is necessary to know the inrush current value and its duration to specify properly the breakers that will protect the electrical installations. When replacing former technology luminaires, in some given circumstances, the inrush current might trip breakers originally designed for the previous install, even when dramatic Wattage and nominal current reduction are achieved by replacing the luminaires to LED. R STAHL dedicates attention to this point, reducing the inrush current when the drivers are designed by our experts team.

LED LIFETIME

The LEDs operates in relatively lower temperatures when compared to former lighting technologies and good luminaires require appropriate heat dissipation. There is a direct correlation between LED temperature and its lifetime, demonstrating that cooler the LED operates, the longer is the lifetime achieved. At R STAHL the LED lifetime is determined by the product operating at its maximum ambient temperature on a continuous basis, providing peace of mind to users with the toughest applications.

IP RATING (BS EN 60529)

Standing for the protection against water and dust ingression, R STAHL LED linear luminaires are certified for IP66 & IP67. IP66 rated luminaires provides protection against high-pressure (12.5mm) water jets, whilst offering full dust ingress protection. The water ingress test includes the luminaire being subjected to 100 litres per minute of water volume with the pressure of 100 kPa, at a distance of 3m for at least 3 minutes. IP67 combines full dust ingress protection with temporary submersion (1m, form 30min), being complementary to the IP66 test.

IK RATING (BS EN IEC 62262)

In industrial environments, luminaires are constantly subject to impact from different sources during regular operation and maintenance interventions. R STAHL LED linear luminaires are IK10 rated, resisting to 20J impact – this is a 5Kg mass cylinder, 100mm diameter, dropping from 40cm, directly to the luminaire.

LIGHT FLICKERING

In a nutshell, light flickering is the emitted lumens variation on a given period of time. The lumens from a LED luminaire varies up and down in a frequency of 100Hz in the UK. A human eye can not perceive this variation, however its effects can be noticed. High-flicker luminaires provoke stroboscopic effect on rotary equipment, and an operator exposed for prolonged time to such luminaire can develop migraine and tiredness. So, light flickering is related to HSE and operator comfort. R STAHL luminaires are low-flicker because of the attention to detail our R&D team put on our luminaires development.

EFFICACY LM/W

LEDs are fantastic devices capable to convert electricity in visible light whilst generate low heat, especially when compared to former lamps technologies. The ratio of lumens generated by LEDs divided by the Wattage consumed is named efficacy and it is a relevant point to consider when calculating the return over investment the luminaire is expected to provide. At R STAHL we declare the whole luminaire efficacy, or in other words, the total lumens output divided by the Wattage, so the customer knows exactly what to expect.

EMERGENCY SELF-TEST

Regular emergency lighting tests and records are compulsory in the UK. R STAHL emergency self-contained luminaires simplifies this task by offering an integral self-test module that performs weekly checks on the luminaires driver and battery, as well as a yearly battery duration test, with no need of any external intervention. Any component fault identified during these tests is signalized by the green-red LED indicator fitted into the luminaire, significantly simplifying the lighting inspection task.

CENTRAL BATTERY SYSTEMS

Some emergency lighting applications can be more cost-effective by using R STAHL central battery system, which can fully monitor the field luminaires from the CBS installed on a safe area, with no requirement for any additional cabling.

EMERGENCY BATTERY ENABLER

Our emergency linear luminaries are equipped with an emergency enabler terminal, allowing the emergency lighting be in place only when needed, what's especially interesting for unmanned platforms and remote installations.

PRODUCT TECHNICAL DATA – ZONE 1

LINEAR LED LUMINAIRES, STANDARD AND EMERGENCY, ZONE 1

FEATURES

- High efficacy up to 139 lm/W.
- Long life-time >100,000 hrs @60°C.
- Easy install through push-fit terminals.
- Self-test battery on emergency version.
- Labyrinth seal securing high IP66/67.
- Emergency remotely enabled.
- Low glare.
- Adjustable fixing points.

Technical Data			
Zone	1 and 2, 21 and 22	Entries	4x M20 (3 plugged)
Type of Protection	II 2 G Ex db eb ib op is IIC T4 Gb II 2 D Ex tb op is IIIC T100 °C Db	Surge Protection	L-L 1KV L-N 2KV
Certificates	ATEX, IECEx, INMETRO and DNV GL	THD	Std 2ft <17% Std 4ft <10% Std 5ft <9% EM 2ft <15% EM 4ft <10%
IP rating	IP66/67		
IK rating	IK10		
Ambient Temperature Range	Std: -40 °C to 60 °C EM: -20 °C to 60 °C	Cable Connection	Push-fit terminals (Std 5, EM 8) Max 16A Solid cable 6mm² Stranded cable 4mm²
LED lifetime	100,000 @ 60°C L90B50		
Driver lifetime	C10 ≥ 100,000 h, Ta ≤ 50 °C C10 ≥ 50,000 h, Ta ≤ 60 °C	Wiring	Through wiring, connection on both ends
CRI	80	Body	Glass-mat reinforced polyester (GRP)
SDCM	5	Diffuser	PC Clear. Option: frosted.
Photobiological Risk Group	RG1	Seal	Silicone, dispensed
Voltage	100-240Vac 50-60Hz 110-230Vdc	Internal Safety Switch	Std:1 EM:3
Inrush Current	Std 51A @ 127µs EM 63A @ 115µs	Emergency Module	Self Test
Flickering	<10%	Battery Autonomy and Lumens levels on 3h	1.5/3.0 hours, selectable 2ft: 30% of nominal lumens level 4ft: 20% of nominal lumens level
CCT	5000K On request: 3000K, 4000K, 6500K, Green, Orange, Red		

Stahl SAP Code	Model	Length (ft)	Wattage (W)	Luminous Flux (lm)	Efficiency (lm/W)	CCT (K)	Type Number	Weight (Kg)
316779	Standard	2	22	2910	132	5000	6002/4128-0101-152-LLL2-22-8500	4,40
316780	Standard	4	42	5810	138	5000	6002/4148-0101-152-LLL2-22-8500	6,90
316811	Standard	5	50	6960	139	5000	6002/4168-0201-152-LLL2-22-8500	8,00
272271	Emergency	2	25	2910	116	5000	6009/4128-2103-162-LLL2-22-850011	6,70
272272	Emergency	4	45	5810	129	5000	6009/4148-2103-162-LLL2-22-850011	9,20

* For different CCTs, please, contact R STAHL.
** Frosted PC diffuser available, please, contact R STAHL.

ACCESSORIES

Stahl SAP Code	Part number / Description	Basic Description
227512	Mounting Sleeve for size 2 and size 4 fittings, complete with assembly parts (for pipe diameter 42mm)	Pole mounting sleeve
222459	R 1 1/2"; with mounting rail for a variable mounting distance; material: stainless steel; 1 pair	Pipe clamp
222458	R 1 1/4"; with mounting rail for a variable mounting distance; Material: stainless steel; 1 pair	Pipe clamp
222460	R 2"; with mounting rail for a variable mounting distance; Material: stainless steel; 1 pair	Pipe clamp
222826	Ceiling mounting bracket, adjustable	

LED luminaire, Zone 1 — SAP Code 6002

Inrush current	Ipeak=51 A; ▲t=127µs Maximum number of luminaires per miniature circuit breaker			
Type	10 A	16 A	20 A	25 A
B	12	19	24	31
C	20	33	41	51
K	41	66	82	103

Linear LED, Emergency, Zone 1 — SAP Code 6009

Inrush current	Ipeak=63 A; ▲t=115µs Maximum number of luminaires per miniature circuit breaker at 230V			
Type	10 A	16 A	20 A	25 A
B	18	29	37	46
C	37	59	74	93
K	18	29	37	46

Beam angle: 120°