BEKA Schréder

Experts in lightability™

LEDLUME®

LED solution for an optimised investment

EXEDRA iTERRA HI FLEX™

LEDLUME

IP 66

Up to IK 10

Up to 20kV

LEDLUME 1

LEDLUME 2

LEDLUME 3

LEDLUME 4

SA Pat. 2012/07685

A profitable investment

The LEDLUME range offers optimised photometrical performance with a minimum total cost of ownership. It provides customers with the ideal tool to generate energy savings, improve lighting levels and reduce maintenance costs. The great variety of high-performance optics optimises the photometric distribution for each specific application to achieve minimum energy consumption.

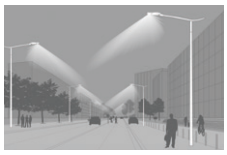
The LEDLUME range offers flexible combinations of LED modules, a choice of currents and dimming options to further maximise energy savings and provide the most cost-effective solution.

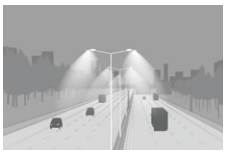
Key advantages

- Designed and manufactured in South Africa
- Designed to operate LED light sources of up to 317W in an ambient temperature (Tq) environment of up to 25˚C, without reducing the useful lifetime of 100 000 hours, at a lumen depreciation of not more than 30% (L70B10)
- Possible energy savings of more than 70% (*)
- Designed to easily upgrade or replace the surge protection device, LEDs or drivers
- Easy to install
- Unsurpassed light uniformity
- Circular economy 3-star rating
- 5-year warranty (Terms and conditions apply)

(*) Combined with controls

STREETS		ROADS		MOTORWAYS
Residential streets	Shared zones, commercial streets in urban areas	Rural & urban roads	Motorways and ring roads	Motorways





Conventional lighting substitute

70W HPS	150W HPS	250W HPS	400W HPS	600W HPS

Characteristics

GENERAL INFORMATION	
Recommended installation height	4m to 30m
FutureProof	Easy replacement of the photometric engine and electronic assembly on-site
Driver included	Yes
ROHS compliant	Yes
Testing standard	SANS 475, SANS 60598, SANS 62262

HOUSING AND FINISH	
Housing	Marine grade high-pressure die-cast aluminium (EN 1706 AC-44300)
Optic	Acrylic PMMA
Protector	High-impact clear glass
	High-impact polycarbonate (optional)
Housing finish	Unpainted aluminium
Tightness level	IP 66
Impact resistance	High-impact clear glass: Up to IK 09
	High-impact polycarbonate: IK 10
Access for maintenance	Easy access to the gear compartment by means of a hinging mechanism

DIMENSIONS AND MOUNTING	
AxBxC (mm)	1: 244x444x104
	2: 244x535x107
	3: 345x618x111
	4: 386x835x120
Weight (kg)	1: 4
	2: 4.5
	3: 9
	4: 13
Aerodynamic resistance (CxS) (m^2)	1: 0.046
	2: 0.057
	3: 0.072
	4: 0.088
Standard mounting (mm)	Slip-over side-entry Ø42
Spigot length (mm)	≥ 125

ELECTRICAL INFORMATION	
Electrical class	EU class I or II
Nominal voltage	198-264V – 50Hz
Power factor	> 95% at full load
Surge protection	10kV / 10kA
	20kV / 20kA (optional)
Electromagnetic compatibility (EMC)	SANS 55015:2013/A1:2015, SANS 61000-3-2:2014, SANS 61000-3-3:2013, SANS 61547:2009, SANS 62493:2015
Control options	Schréder EXEDRA remote management
	Schréder ITERRA
	Optidim
	Internal daylight switch
	Incorporated NEMA socket assembly – 3-pin
	Incorporated NEMA socket assembly – 7-pin, Schréder EXEDRA ready or compatible with standard daylight switch

OPTICAL INFORMATION	
LED colour temperature	4000K (Neutral white 740)
Colour rendering index (CRI)	≥ 70 (Neutral white 740)
Upward Light Output Ratio (ULOR)	0%
Standard optic	5428

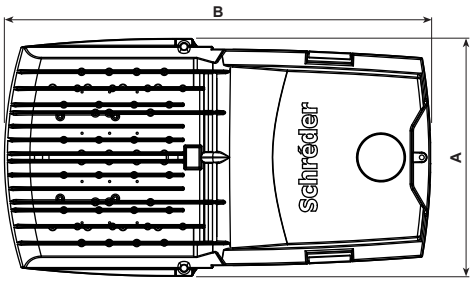
OPERATING CONDITIONS	
Operating temperature range (Ta)	-35°C up to +40°C (*)

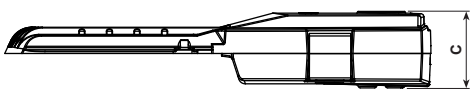
(*) Depending on the luminaire inclination and driving current. For more details, please contact us.

LIFETIME OF THE LEDS @ TQ 25°C	
For all versions	100,000h - L70B10

LIFETIME OF THE DRIVER @ TQ 25°C	
For all versions	Up to 100,000h ≤10% failure rate

For options and accessories, please turn to page 11.





Switching/dimming control

5 good reasons to **smartify your lighting**

1 Optimising energy efficiency

Reduce your electricity bills and minimise your carbon footprint. Use control features and sensors to define when your lights are turned on, off or dimmed.

- **Scheduled lighting** based on working shifts and human activity.
- **Light sensors** to harvest natural light and only compensate with artificial lighting if necessary.
- **Motion sensors** to trigger lighting through detection of people entering an area.

2 Getting the right light

Take advantage of a lighting control system to precisely adjust the light intensity, colour temperature and scenario according to the actual needs.

3 Maximising safety and productivity

Help your employees perform at their best with human-centred lighting. Lighting plays an essential role in the daily life of your business. Not only does it create the atmosphere of a place, it also contributes to the mental well-being, sleep, safety and work efficiency of your staff.

4 Making technology convenient

Remotely control all parameters of your lighting. Check the status at a glance, monitor energy consumption and adjust your scenarios anytime, anywhere.

5 Increasing the life span of luminaires

Dimming and light-on-demand features limit energy usage for each luminaire and allow them to last longer.

This reduces he number of replacements required and also provides environmental benefits.

Schréder ITERRA

Schréder ITERRA provides a complete user- and installer-friendly wireless control solution for various lighting applications.

Schréder ITERRA offers site managers a robust, cost-effective and future-proof platform to run their infrastructure with the utmost flexibility for adapting the lighting to any scenario or activity while maximising energy savings and providing the best experience for employees, visitors and managers.

A mobile App based system, Schréder ITERRA is very easy to operate. It comes with a visual interface that users can quickly personalise to the layout and settings of their lighting installation.

Download on the App Store GET IT ON Google Play

Schréder EXEDRA

Schréder EXEDRA is the most advanced lighting management system on the market for controlling, monitoring and analysing streetlights in a user-friendly way.

Standardisation for interoperable ecosystems

Schréder plays a key role in driving standardisation with alliances and partners such as uCIFI, TALQ or Zhaga. Our joint commitment is to provide solutions designed for vertical and horizontal IoT integration. From the body (hardware) to the language (data model) and the intelligence (algorithms), the complete Schréder EXEDRA system relies on shared and open technologies.

Schréder EXEDRA also relies on Microsoft™ Azure for cloud services, provided with the highest levels of trust, transparency, standards conformance and regulatory compliance.

Breaking the barriers

With EXEDRA, Schréder has taken a technology-agnostic approach: we rely on open standards and protocols to design an architecture able to interact seamlessly with third-party software and hardware solutions. Schréder EXEDRA is designed to unlock complete interoperability, as it offers the ability to:

- control devices (luminaires) from other brands
- manage controllers and to integrate sensors from other brands
- connect with third-party devices and platforms

A plug-and-play solution

As a gateway-less system using the cellular network, an intelligent automated commissioning process recognises, verifies and retrieves luminaire data into the user interface. The self-healing mesh between luminaire controllers enables real-time adaptive lighting to be configured directly via the user interface.

Tailored experience

Schréder EXEDRA includes all advanced features needed for smart device management, real-time and scheduled control, dynamic and automated lighting scenarios, maintenance and field operation planning, energy consumption management and third-party connected hardware integration. It is fully configurable and includes tools for user management and multi-tenant policy that enables contractors, utilities or big cities to segregate projects.

A powerful tool for efficiency, rationalisation and decision making

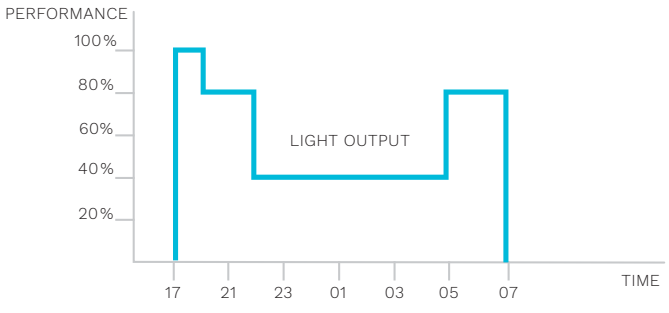
Data is gold. Schréder EXEDRA brings it with all the clarity managers need to drive decisions. The platform collects massive amounts of data from end devices and, aggregates, analyses and intuitively displays them to help end-users take the right actions.

Protected on every side

Schréder EXEDRA provides state-of-the-art data security with encryption, hashing, tokenisation, and key management practices that protect data across the whole system and its associated services.

Optidim

Intelligent luminaire drivers can be programmed in the factory with complex dimming profiles. Up to 5 combinations of time intervals and light levels are possible. This feature does not require any extra wiring. The period between switching on and switching off is used to activate the preset dimming profile. The customised dimming system generates maximum energy savings while respecting the required lighting levels and uniformity throughout the night.



Daylight switch

Our solutions can be managed by photoelectric sensors that switch on the luminaires exactly when natural light becomes insufficient (cloudy day, night fall...) so as to provide safety and comfort in the public space.

Performance

				Nominal flux (lm) (*)	Power consumption (W)	Nominal efficacy (lm/W)	Luminaire output flux (lm)	Luminaire efficacy (lm/W)	Photometry (**)
Luminaire	Number of LEDs	Driver Current (mA)	Line Current (A)	Typical	Typical	Typical	Typical	Typical	
LEDLUME 1	24	750	0.16	6435	36	180	5663	158	HI FLEX™
	24	900	0.19	7645	44	176	6727	155	
	24	700	0.22	8906	51	173	7837	153	
	24	800	0.26	10089	59	170	8878	149	
	24	1000	0.33	12444	76	164	10951	144	
LEDLUME 2	48	450	0.18	7831	42	187	6892	164	HI FLEX™
	48	750	0.31	12871	72	180	11326	158	
	48	1050	0.45	17811	103	173	15674	153	
LEDLUME 3	96	600	0.49	20783	113	184	18289	162	HI FLEX™
	96	750	0.62	25741	143	180	22652	158	
	96	900	0.76	30579	174	176	26910	155	
LEDLUME 4	120	1050	1.12	44529	257	173	39185	153	HI FLEX™
	144	750	0.93	38612	215	180	33979	158	
	144	900	1.14	45869	261	176	40364	155	
	192	600	0.98	41566	226	184	36578	162	
	192	830	1.38	56320	317	178	49562	156	

Tolerance on LED flux is ± 7% and on total luminaire power ± 5%

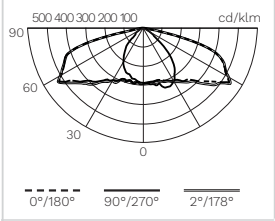
(*) The nominal flux is an indicative LED flux @ Ts 85°C based on LED manufacturer's data. The real flux output of the luminaire depends on environmental conditions (e.g. temperature and pollution) and the optical efficiency of luminaire. The type of LED used is subject to change due to the ongoing rapid progress taking place in LED technology.

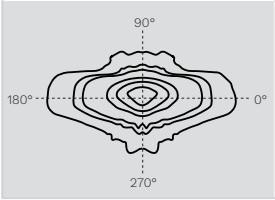
(**) Custom combinations of lenses/optics to suit the project are available on request.

Light Distributions

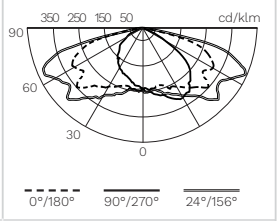
Custom combinations of lenses/optics to suit the project are available on request.

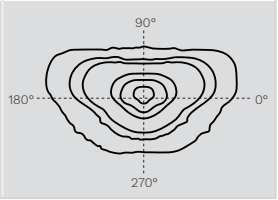
HI FLEX™ 5424 optic





HI FLEX™ 5428 optic





Key Features

The luminaire consists of an LED engine, power supply and spigot compartment. This allows the easy installation of the LED engine by means of a hinging action onto a spigot base casting.

Surge protection:
10kV/10kA
Optional: 20kV/20kA

Optional:
A tamper-proof screw ensures controlled access by means of a special coded tool.

The power supply is automatically disengaged when opening the luminaire.

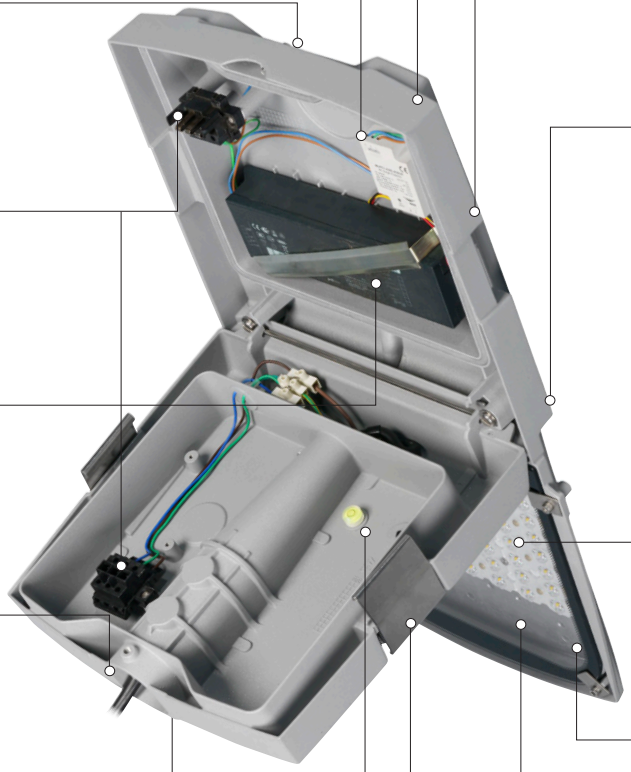
The electronic power supply is suitable for operation with a 198-264V 50Hz single phase system. (DC versions are available). The power factor is rated at ≥0,95. The efficiency is rated 89%.

Side entry
ø42mm * 125mm

Special use of stainless steel inserts to prevent galvanic corrosion between stainless steel and aluminium, allowing future removal of the luminaire from the spigot.

Levelling device

Secured by stainless steel latches and access screw.



The LED engine, consisting of the LED light source and the power supply, can be easily replaced or upgraded.

The luminaire housing is manufactured of marine-grade aluminium.

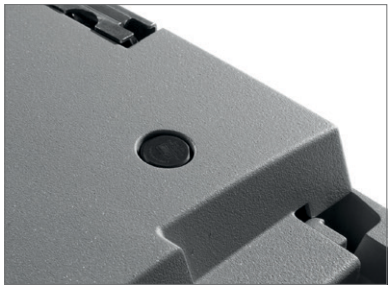
Electronic temperature monitoring prevents overheating of LEDs and power supply.

Each LED is equipped with a lens to provide the desired light distribution.

The protector is manufactured from high-impact clear flat glass or polycarbonate.

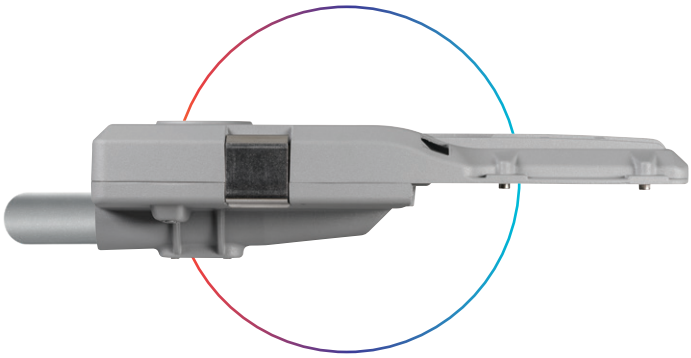
To maximize the reliability of the LEDs, the photometrical engine is completely sealed to IP 66. This ensures that the photometric performance is maintained over time.

Optional levelling spigot adaptors:
Bottom entry Ø76mm (0° to +15°) spigot or
Side entry Ø42-48mm (+15° to -15°) spigot



Integrated vent (breather) for rapid pressure equalisation and reduction of condensation

Case Study: 150W HPS Comparison



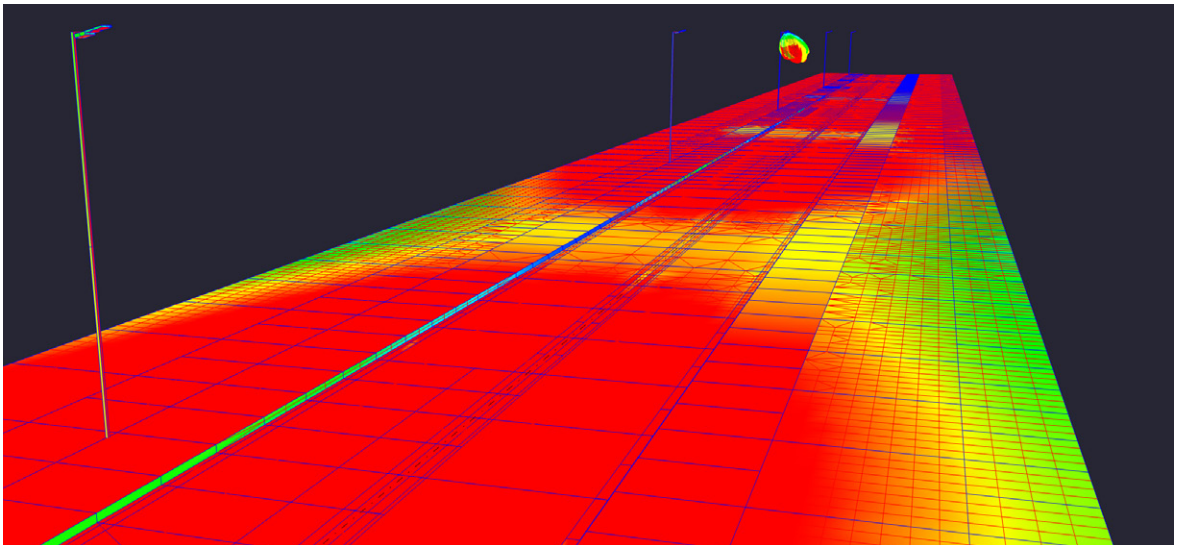
Specifications

Road: B1 classified road + 2m setback
Luminaire spacing: 47m
Road width: 7m + 2*2m sidewalks
Height: 7m

Comparing a 150W HPS to a LEDLUME 1 streetlight installation

The LEDLUME 1 provides a 76% energy saving compared to a 150W high-pressure sodium luminaire, while fully meeting the road light level requirements.

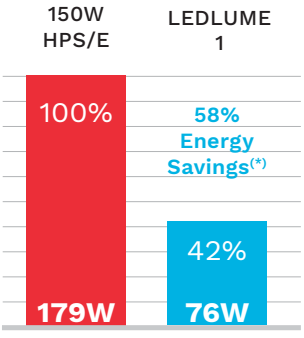
Furthermore, a much better colour rendering index is provided, thereby enhancing the safety and visibility of pedestrians and road users.



	Luminaire fitted with 150W High-Pressure Sodium Lamp	LEDLUME 1 24 LED
Luminaire power consumption	179W	76W
Spacing between luminaires	27m	47m
Average illuminance sidewalk left	17lx	15.7lx
Minimum sidewalk left	6.1lx	2.5lx
Average illuminance lanes	12.4lx	12.5lx
Minimum sidewalk lanes	6.2lx	2.7lx
Average illuminance sidewalk right	5lx	5lx
Minimum sidewalk right	3.7lx	1.9lx
Power consumption per km	6623W	1596W
Percentage saving per km		76%

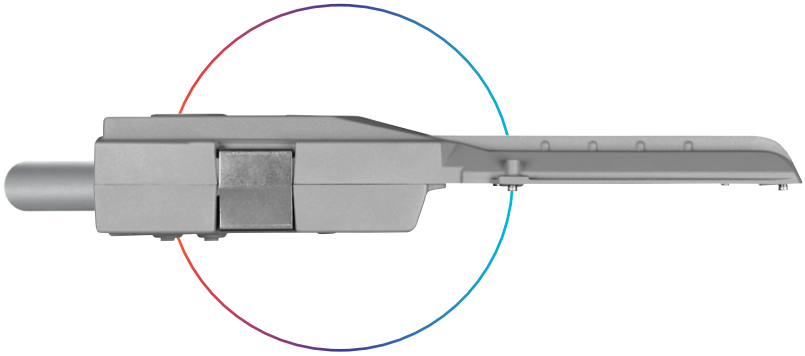
Please note: Detail on lighting design comparison available on request.

Energy Savings



(*)Optic 5424, optimised design based on specifications. Additional savings can be generated by integrating Schréder EXEDRA smart control systems.

Case Study: 400W HPS Comparison



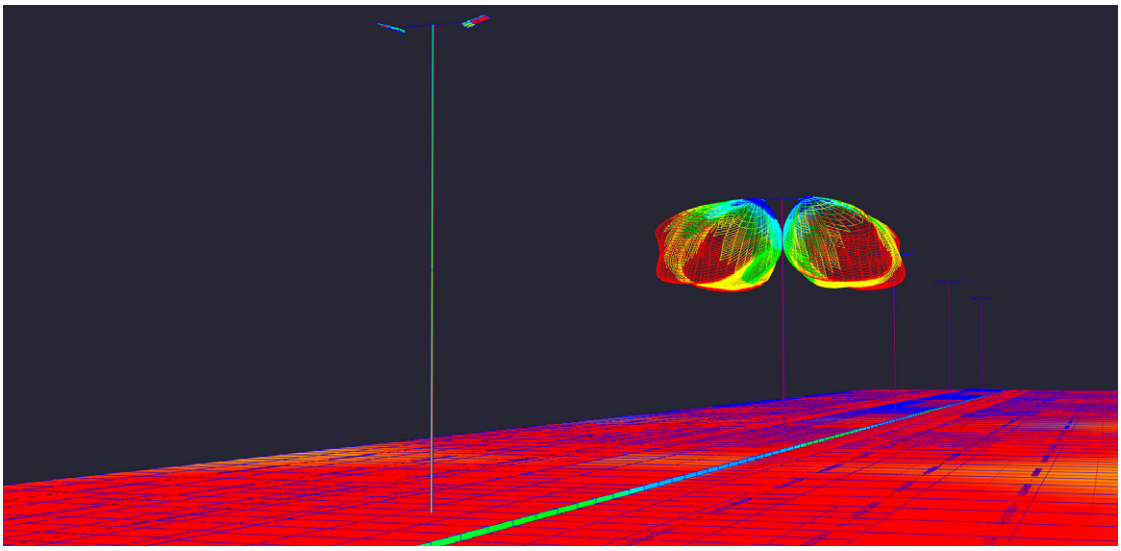
Specifications

Road: A2 classified road + 2.5m setback
Luminaire spacing: 44m
Road width: 33m (4 x 3.5m lanes either side of 5m median)
Height: 12m

Comparing a 400W HPS to a LEDLUME 3 streetlight installation

The LEDLUME 3 provides a 52% energy saving compared to a 400W high-pressure sodium luminaire, while fully meeting the road light level requirements.

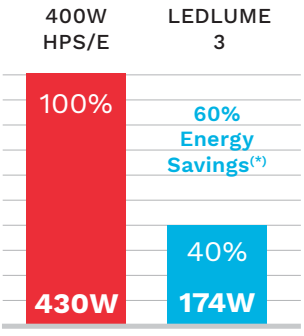
Furthermore, a much better colour rendering index is provided, thereby enhancing the safety and visibility of pedestrians and road users.



	A2 Requirements (with median 600)	Luminaire fitted with 400W High-Pressure Sodium Lamp	LEDLUME 3 96 LED
Luminaire power consumption	-	430W x 2	174W x 2
Spacing between luminaires	-	27m	44m
Average luminance	At least 1.0 cd/m²	2.15 cd/m²	1.09 cd/m²
Global uniformity - U_0	40%	40%	40%
Longitudinal uniformity - U_l	60%	93%	73%
Glare - TI	Less than 20%	7.7%	5.2%
Power consumption per km	-	31820W	15312W
Percentage saving per km			52%

Please note: Detail on lighting design comparison available on request.

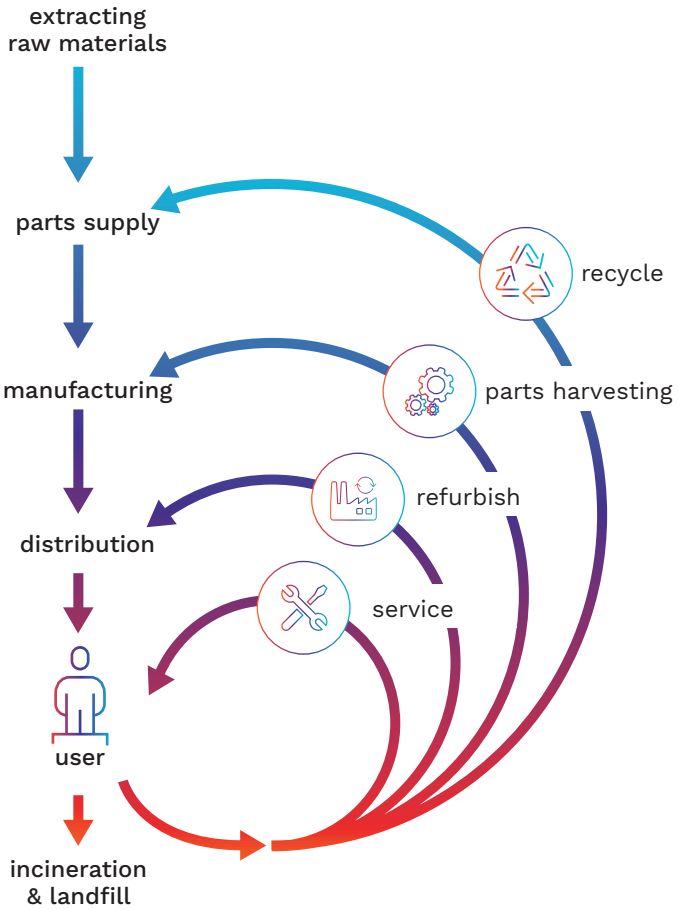
Energy Savings



(*)Optic 5428, optimised design based on specifications. Additional savings can be generated by integrating Schréder EXEDRA smart control systems.

CIRCLELIGHT

Circularity concept



LEDLUME

Circularity focuses on reducing the environmental burden by valorising the flow of all materials.

It is mainly defined in opposition to the traditional linear economy: take, make and dispose. In a circular economy, products are part of a value network where they will be used for as long as possible.

Then, depending on their characteristics, they can be reused, refurbished, upgraded or recycled.

BEKA Schréder takes circular economy into account, right from the offset. Before we start to design our products, we incorporate it into their DNA.

After a careful analysis of the potential circularity of our luminaires, we decided to introduce a “circular lighting” product label. This label acts as a circular indicator for our customers.

It clearly designates products that are optimised for circular economy through 12 objective criteria.

Circular highlights:

- Tool-free opening of the gear compartment for easy maintenance
- Equipped with a completely replaceable LED engine
- Less than 9 steps to completely disassemble the luminaire
- Materials with a high rate of recyclability

Star rating:

It was designed to be cost-efficient

It was built to last but not with circular economy requirements

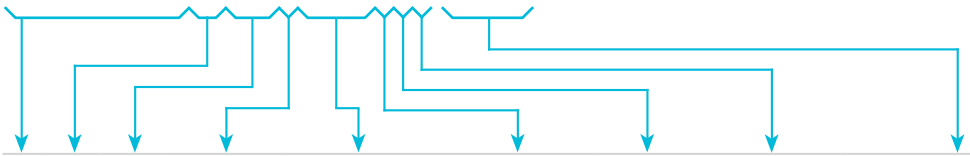
It was developed to meet most of circular economy requirements

It was developed to fully meet circular economy requirements

Ordering Information

Example:

LEDLUME 3 96174N5424A1G NRTO



ID	LED	Watt	LED Colour	Optic[1]	Colour Options	Surge Protection	Protector	Switching/Dimming Control	Other Options / Accessories
LEDLUME 1	24	36	**N** Neutral White (4000K)	5424	**A** Aluminium finish (unpainted)	**1** 10kV	**G** Glass	**DL** Downward facing daylight switch	**Nominal Voltage** 90-305V - 50Hz
	24	44	**W** Warm white (3000K)	5428	**S** Pearl Light Grey (RAL 9022), Textured finish	**2** 20kV	**P** Polycarbonate	**N3** NEMA 3-Pin Socket Only	**Mounting** Bottom entry Ø76mm or side entry Ø42-48mm levelling spigot adaptors
	24	51	**C** Cool white (5700K)		**B** Black (RAL9017), Textured finish			**N7** NEMA 7-Pin Socket Only	**Vandal-resistant** Vandal-resistant version, preventing unauthorised access to the luminaire by means of a special coded access screw
	24	59			**W** White (RAL9003), Textured finish			**NR** NEMA complete with Royce Thomson DLS	
	24	76			**O** Painted Other (RAL / Finish [Brilliant/Matt])			**NS** NEMA complete with Spectrum DLS	**Theft-proof** Theft-proof version, preventing removal of the luminaire on a ø42mm spigot (this requires a pre-drilled spigot)
LEDLUME 2	48	42						**3D** NEMA 3-Pin complete with dummy link	
	48	72						**7D** NEMA 7-Pin complete with dummy link	**Jig theft-proof** Jig for drilling ø42mm pole spigot to make it suitable for theft-proof version
	48	103						**PI** NEMA 7-Pin complete with plug-in 20kV surge protection	**Tool theft-proof** Tool to open access screw for vandal-resistant and theft-proof version
LEDLUME 3	96	113						**CM** Schréder EXEDRA CM	**Photometry** Back light control
	96	143						**TO** DIM (Optidim)	
	96	174							
LEDLUME 4	120	257							
	144	215							
	144	261							
	192	226							
	192	317							

[1] Custom combinations of lenses/optics to suit the project are available on request.

Custom Options

Switching/Dimming Control	Integrated Schréder ITERRA
	Internal daylight switch

BEKA Schréder

Experts in lightability™

SABS ISO 9001

www.beka-schreder.co.za

Designed and manufactured by BEKA Schréder (Pty) Ltd

LOCALLY manufactured

2023-10