

 **STRAL**[®]
LIGHTING FOR LIFE

Led for industry

stral.it



We design and produce
LED lighting fixtures
for industrial and
commercial use

Stral, being part of the Palazzoli Group, leader in the electro-technical sector, has affirmed its identity in the light market, specializing in the conception, design and production of stainless steel lighting systems for external, residential use.

Founded in Brescia in 2004, Stral has gained over the years a deep and consolidated experience in the study of light and its uses, expanding its knowledge also towards the industrial and commercial sector, from which the new product range has been developed.



Made in Italy

The whole range of Stral's products is made in Italy with reliable and durable materials. The quality and care that Stral dedicates to the architectural line can be also find in this, offering a product characterized by high quality and aesthetic standard.

Service and innovation

Stral's technical department provides its customers with all the necessary tools for planning, surveys and lighting studies. The laboratory uses the newest generation technologies tools, like the mirror goniophotometer. Stral production meets the requirements of a constantly evolving market: the implementation of the newest technologies makes it, in fact, at the forefront from a mechanical and lighting point of view.



IP Ingress Protection Rating

Our range of industrial lighting fixtures is totally protected against ingress of dust and powerful jets of water according to the regulations in force. The IP Code is followed by two digits: the first digit represents protection against the intrusion of solid bodies, the second digit describes the degree of protection against water intrusion.

1st digit
PROTECTION
AGAINST INTRUSION OF SOLID BODIES

6	Totally protected against dust.
----------	---------------------------------

2nd digit
DEGREE OF PROTECTION
AGAINST WATER INTRUSION

5	Protected by jets of water coming from all directions.
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6	Protected against powerful water jets.
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7	Protected against the effects of temporary water immersion within defined duration and pressure conditions.
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C Corrosion criteria

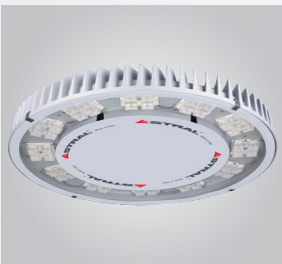
ISO 9223: 2012 establishes a system that identifies the corrosiveness of the environments and their classification according to the estimate corrosion rate linked to the environments. Our lighting fixtures resist in environments classified in corrosion class from C3 to C5. They are therefore suitable for outdoor installations in

urban or industrial environments with pollution levels from very low to high; coastal areas with chloride concentrations from very low to high, internal production spaces with high humidity and high pollution air (e.g. swimming pools, chemical plants, buildings or permanent condensation areas).

CORROSION CLASS	TYPICAL ENVIRONMENTS EXAMPLES	
	OUTDOOR	INDOOR
C3 MEDIUM	Moderately polluted urban and industrial environments, or coastal areas with low chloride concentration	Manufacturing spaces with high humidity and low air pollution, for example swimming pools and chemical plants
C4 HIGH	Moderately polluted industrial environments or coastal zones with moderate chloride concentration	Manufacturing spaces with high humidity and low air pollution, for example swimming pools and chemical plants
C5-I VERY HIGH (industrial)	Industrial environments with high humidity and high pollution	Buildings or areas with permanent condensation and high pollution
C5-M VERY HIGH (marine)	Coastal and marine areas with high chloride concentrations	Buildings or areas with permanent condensation and high polluted areas



A new offer for every need



ZANTE
LED
Suspended

6



KAE
LED
Suspended

16



KAE
LED
Projector

20



RODI
LED
Ceiling

26



CRETA
LED
Oval

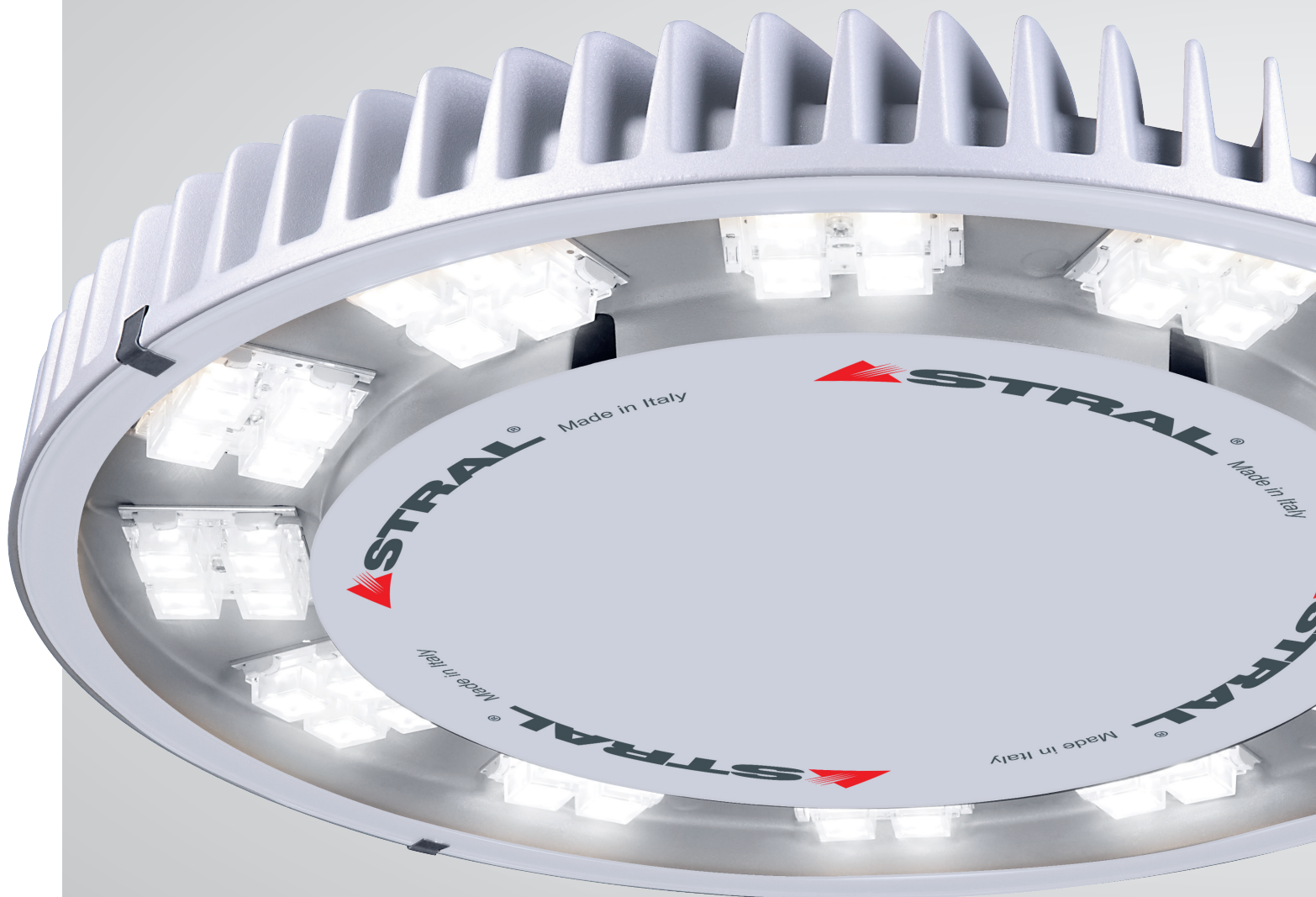
36



CRETA
LED
Round

36

ZANTE LED



The advantages:

- Compact and ideal for re-lamping
- Easy one-to-one replacement
- High visual comfort (CRI80 and low UGR <22)
- High energy savings
- Fast return on investment
- Easy installation
- Wide range of accessories
- Compact weight and dimensions
- Long duration
- Selected mechanics and electronics
- Protections (10KV) against network disturbances
- Integration with light control management systems
- Standard 1-10V piloting set up for DALI
- Made in Italy



ZANTE LED is the lighting solution for industrial and commercial sites, which guarantees high performances over time.

Visual comfort, safety and efficiency ensure energy savings > 50% and a rapid return on investment (ROI), when replacing discharge lamps up to 400W.

IP66

Ingress protection rating

IK07

Degree of impact resistance



Flicker free



Risk group zero



Resistant to ISO9223 standard corrosion



Energy saving



1-10V standard



DALI on request



File LDT



5 Years Warranty

It has been designed with high quality materials, to meet the demands of users who are looking for critical environments solution: the high impact resistance IK07 and the IP66 protection degree make ZANTE LED the ideal solution even for harsh work environments, ensuring functional performance over time with ambient temperature up to 45° C.

The compact body, made entirely of die-cast aluminium with low copper content, ensures high mechanical resistance. The structure of the dissipating part allows correct heat management, emphasizing the maximum reliability of the

electronic components. The extra-clear glass diffuser is designed for maximum LED sources protection in all kind of applications. Different luminous fluxes and photometric distributions, at high efficiencies (over 130 lm/watt) make ZANTE LED the ideal solution for industrial lighting applications (production sites), logistics centers (warehouses, railway depots, storage centers), sports facilities (gyms, sports centers) commercial premises (shop center), or transit (stations, airports, subways).

ZANTE LED

Ideal for lighting:

- Industrial sites
- Storage centers
- Logistics
- Deposits
- Manufacturing industries
- Indoor and outdoor sports facilities
- Gyms
- Airports, stations



Type

Professional suspension luminaire.

Body

Body in die-cast aluminium with low copper content and anti-corrosion treatment, painted with silver metallic colour.

Extra clear tempered glass diffuser 4 mm thick.

Helicoidal rear fins.

Sources

Latest generation LEDs with standard 4000K colour temperature (3000K and 5000K on request). Colour rendering index CRI 80.

Optics

Wide, narrow, medium and elliptical.

Supply - Wiring

Standard 1-10V power supply with 6/10KV protection.

Connection system with five-pole cable.



Light sources

New generation CSP LEDs to maximize performance



Fastening

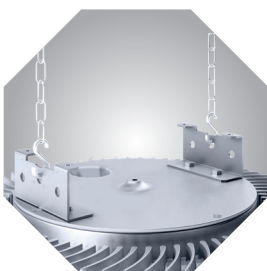
Hook (supplied) with SAFETY LOCK system



Interface module

Conversion module for DALI systems

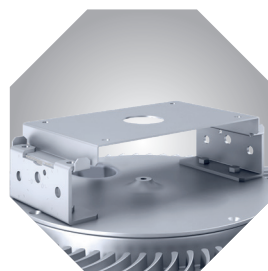
Suspensions options



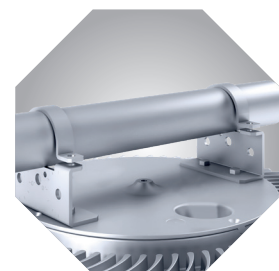
Support bracket for double chain suspension



Support bracket for adjustable suspension



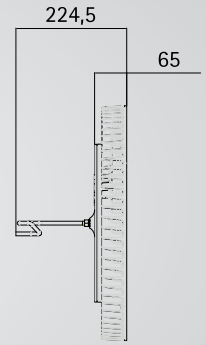
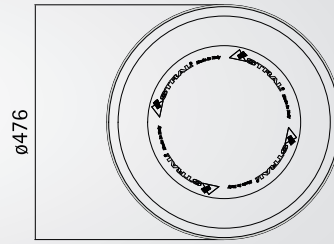
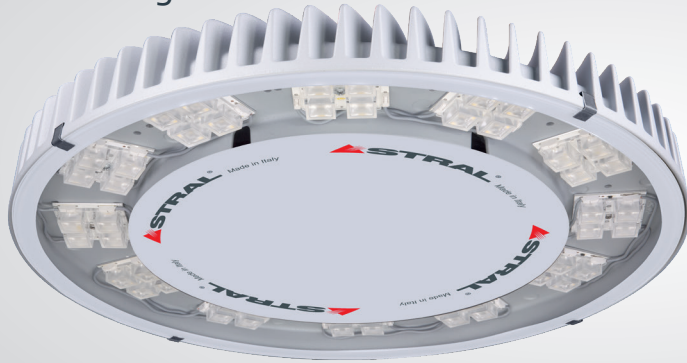
Support bracket for ceiling mounting



Support bracket for horizontal pole mounting

ZANTE LED

Suspension range



IP66

Ingress protection rating

IK07

Degree of impact resistance



Flicker free



Risk group zero



Resistant to ISO9223 standard corrosion



Energy saving



1-10V standard



DALI on request



File LDT

5

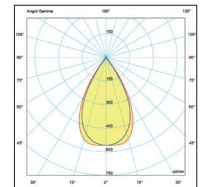
Years Warranty

Professional suspensions Wide beam – glass diffuser

4000K - CRI ≥ 80 - DIMM. 1-10V - IP66 c.l. I

A A+ A++

Code	Description	LED nominal flux T _j =25°C (lm)	Output flux (lm)	Power (W)
9501141	24 LED 100W WIDE IP66	17250	13780	100
9502141	24 LED 135W WIDE IP66	21800	17480	135
9503241	36 LED 156W WIDE IP66	26250	21020	156
9504341	36 LED 196W WIDE IP66	31570	25070	196
9505341	48 LED 235W WIDE IP66	37800	30290	235



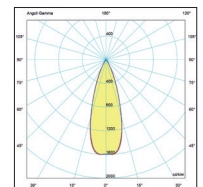
Application Examples on page 43

Professional suspensions Narrow beam – glass diffuser

4000K - CRI ≥ 80 - DIMM. 1-10V - IP66 c.l. I

A A+ A++

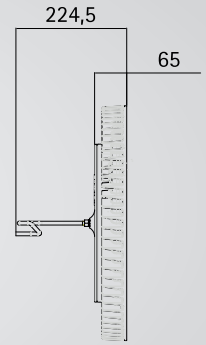
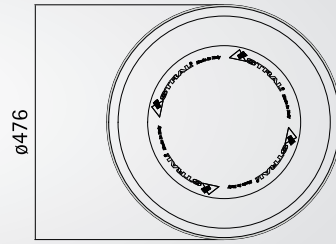
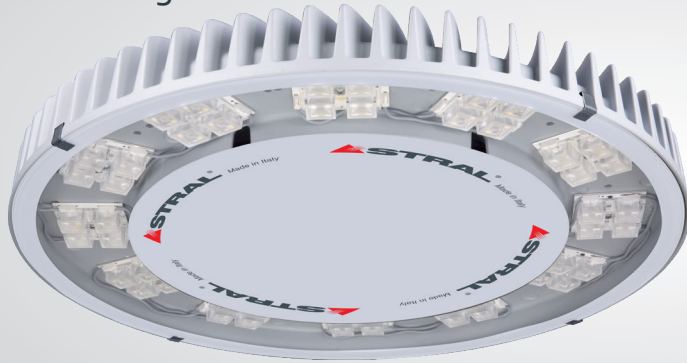
Code	Description	LED nominal flux T _j =25°C (lm)	Output flux (lm)	Power (W)
9501142	24 LED 100W NRW IP66	17250	13110	100
9502142	24 LED 135W NRW IP66	21800	16640	135
9503242	36 LED 156W NRW IP66	26250	20010	156
9504342	36 LED 196W NRW IP66	31570	23860	196
9505342	48 LED 235W NRW IP66	37800	28840	235



Application Examples on page 43

ZANTE LED

Suspension range



IP66

Ingress protection rating

IK07

Degree of impact resistance



Flicker free



Risk group zero



Resistant to ISO9223 standard corrosion



Energy saving



1-10V standard



DALI on request



File LDT

5

Years Warranty

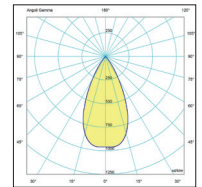
Professional suspensions

Medium beam – glass diffuser

4000K - CRI ≥ 80 - DIMM. 1-10V - IP66 c.l.I

A A+ A++

Code	Description	LED nominal flux T _j =25°C (lm)	Output flux (lm)	Power (W)
9501144	24 LED 100W MED IP66	17250	13250	100
9502144	24 LED 135W MED IP66	21800	16810	135
9503244	36 LED 156W MED IP66	26250	20210	156
9504344	36 LED 196W MED IP66	31570	24100	196
9505344	48 LED 235W MED IP66	37800	29130	235



Application Examples on page 43

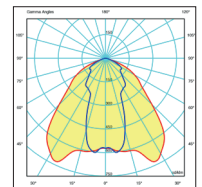
Professional suspensions

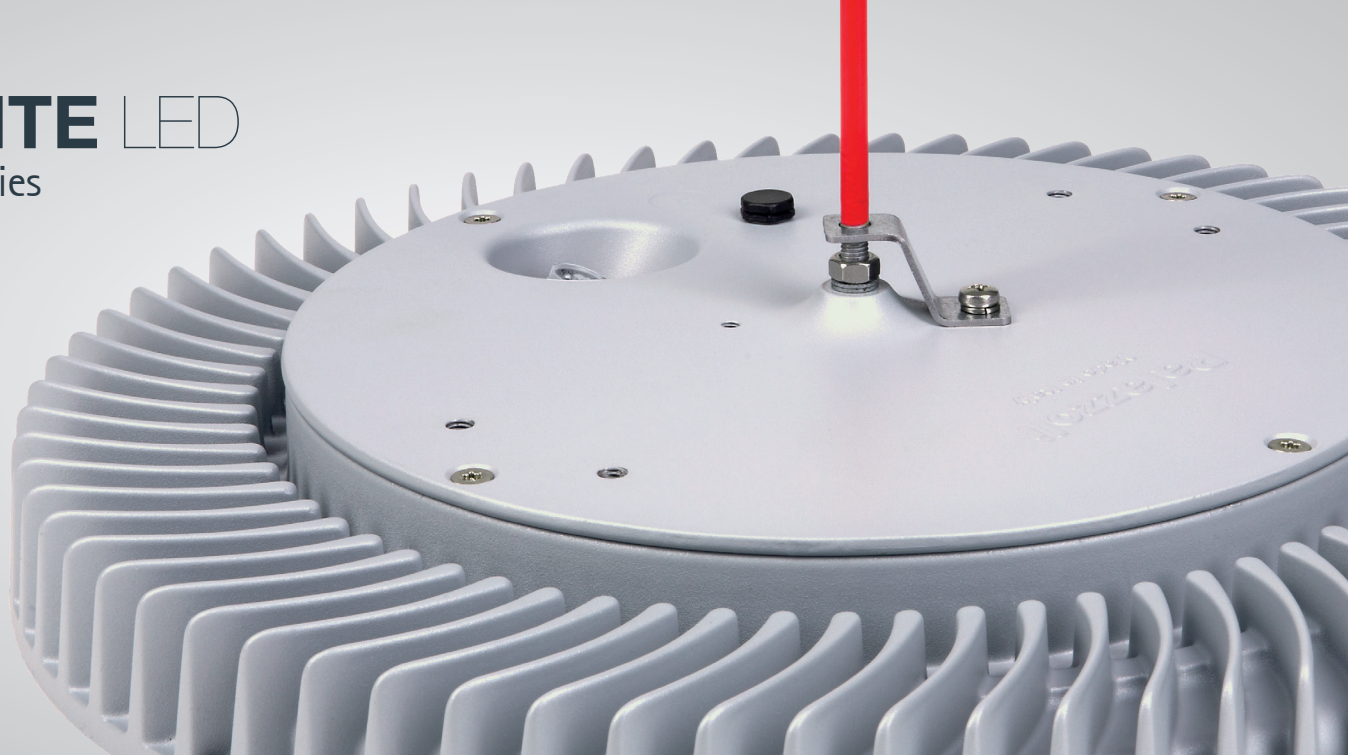
Elliptical beam – glass diffuser

4000K - CRI ≥ 80 - DIMM. 1-10V - IP66 c.l.I

A A+ A++

Code	Description	LED nominal flux T _j =25°C (lm)	Output flux (lm)	Power (W)
9501143	24 LED 100W ELLIPT IP66	17250	13510	100
9502143	24 LED 135W ELLIPT IP66	21800	17140	135
9503243	36 LED 156W ELLIPT IP66	26250	20620	156
9504343	36 LED 196W ELLIPT IP66	31570	24580	196
9505343	48 LED 235W ELLIPT IP66	37800	29710	235





Support bracket

for double chain suspension and busbar

Material	Code
Galvanized steel	70004



Support bracket

for 0-90° adjustable double chain suspension

Material	Code
Galvanized steel	70000



Support bracket

for ceiling mounting

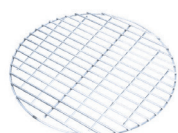
Material	Code
Galvanized steel	70001



Support bracket

for horizontal pole mounting 60mm diameter

Material	Code
Galvanized steel	70002



Protection grid

Material	Code
Galvanized steel	70003



1/10V-DALI Converter

in an IP66 waterproof case

Material (Waterproof case)	Code
Aluminium	00300

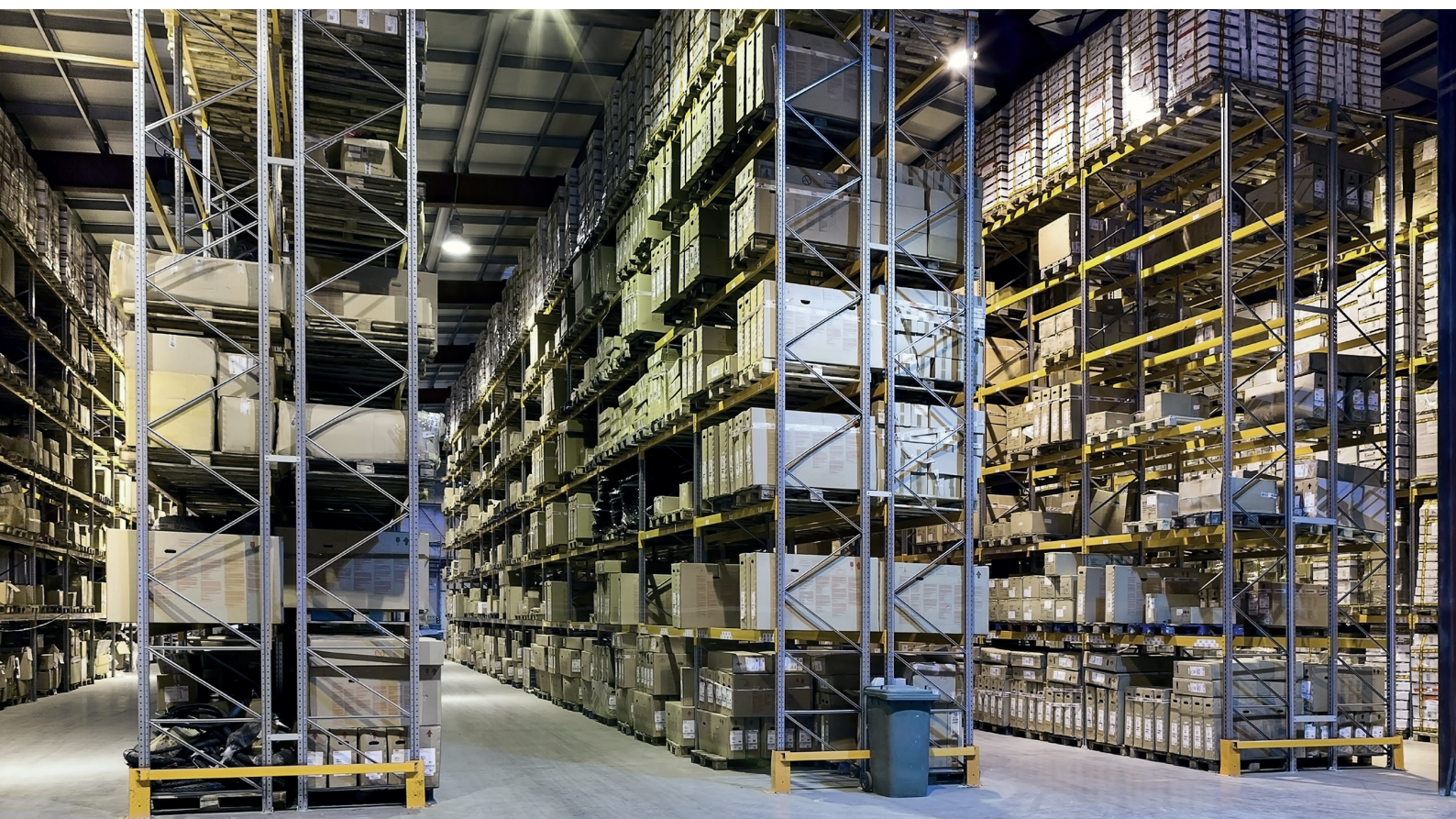
ZANTE LED

Technical specifications

Body material	Aluminium alloy
Surface treatment	Passivation with fluorozirconium
Diffuser material	Extra-clear tempered glass
Painting	Hot polymerized non-toxic polyester
Colour	Metallic silver
Weight	9,5 Kg max
LED device efficiency	≥ 130lm/W
LED colour temperature	4000K (3000K and 5000K available on demand)
CRI	≥ 80
Insulation class	I
Rated voltage	200-240 V 50-60 Hz
Protection against surge discharges	10 kV common mode 10 kV 6 kV differential mode (EN 61000)
Power factor	≥ 95
Glare control	(UGR) ≤ 22
Cable section	1,5mm ²
Cable length	150 cm
Estimated device lifetime	L80 B20 @ 90.000h Tq=-30 °C - +45 °C
Storage temperature	-40 °C - +70 °C
Operating temperature	-30 °C - +45 °C (on request up to +55 °C or other special configurations)

Conformity to standards:

Directive 2014/35 / EU, EN 60598-1: 2015, EN 60598-2-1: 1997, EN 60598-2-5: 2015, EN 60598-2-22: 2014, EN 62471: 2008, Directive 2014/30 / EU, EN 62493: 2015, Directive 2011/65 / EU, IEC/EN 62262, ENEC approval in progress.

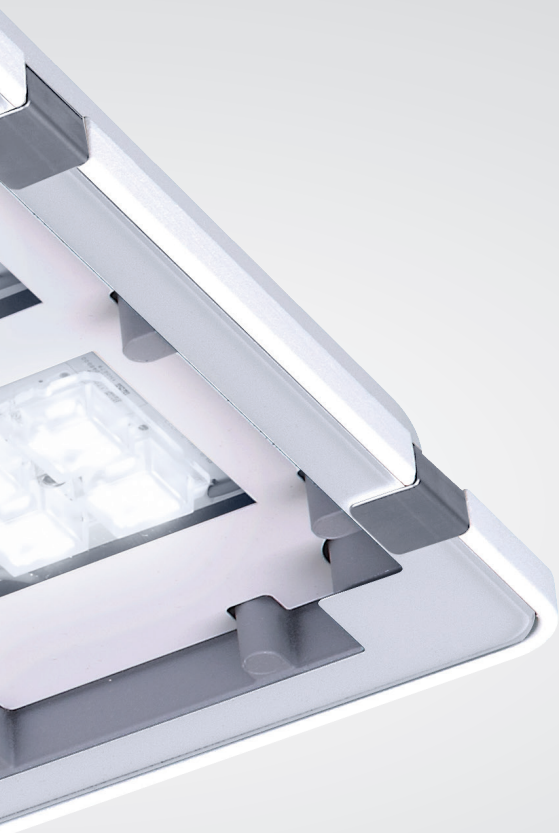


KAE LED



The advantages:

- Innovative and compact design
- Suspension and projector versions
- High thermal dissipation
- Body in anti-corrosion aluminium alloy
- High performance LEDs
- Variety of professional optics
- Installation versatility



KAE LED projector and suspension is the solution for illuminating shopping centers, industrial spaces, sports centers and architectural applications.

Visual comfort, security and photometric versatility guarantee high quality lighting in every application.

IP66
Ingress protection rating

IK07
Degree of impact resistance



Resistant to ISO9223 standard corrosion



Flicker free



Risk group zero



Energy saving



File LDT



Years Warranty

Thanks to its versatility in mechanical and photometric exercise, it can be used in multiple contexts, both as a projector and as a suspension. The high IK07 impact resistance and the IP66 protection rating make it the ideal solution for particularly critical environments, indoors and outdoors.

The compact body, entirely made of die-cast aluminium with a low copper content, guarantees high mechanical strength. The structure of the dissipating part allows a correct management of the heat thus reinforcing the maximum reliability of the

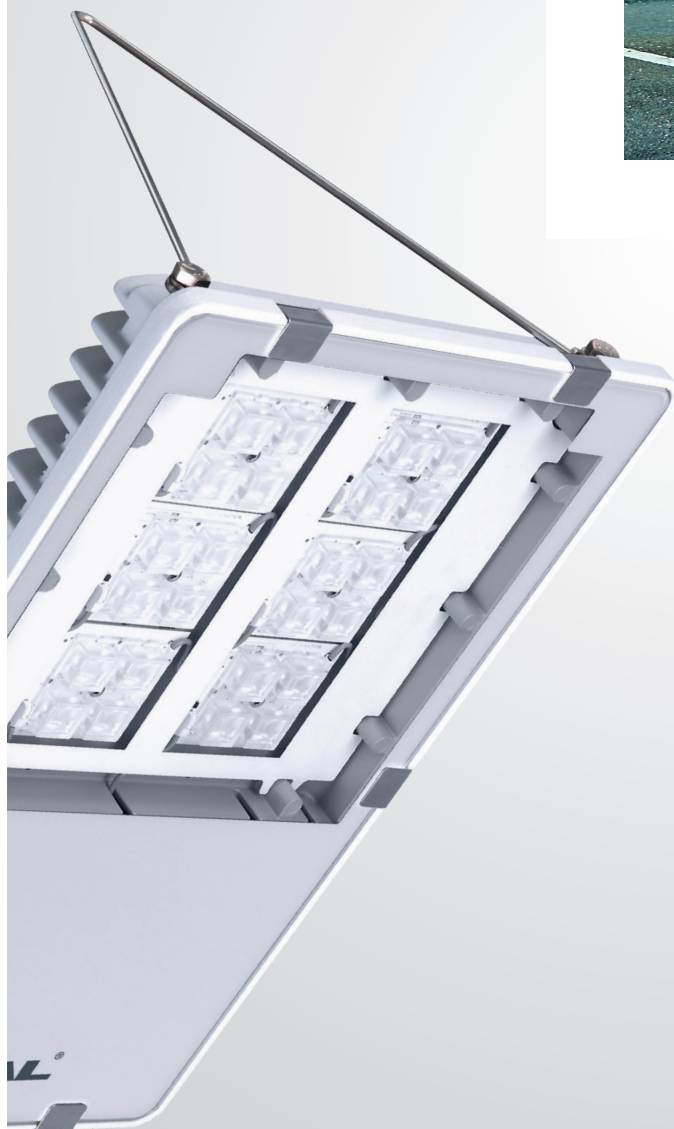
electronic components. The extra-clear glass diffuser is designed for maximum protection of LED sources in all its different installations. Different fluxes and photometric distributions, high yields (over 120 lm/watt) make KAE LED the ideal solution for industrial lighting applications (production sites), logistics centers (warehouses, rail depots, storage centers), sports facilities (gymnasiums, sports centers) commercial premises (commercial center) or transit (railway stations, airports, subways), accent lighting and architectural lighting.

KAE

SUSPENSION

Ideal for lighting:

- Sports facilities
- Industrial areas
- Shopping centers
- Transit areas



Type

Professional suspension.

Body

Die-cast aluminium body with low EN44300 copper content with anti-corrosion treatment, painted in metallic silver colour. Extra clear tempered glass diffuser, 4 mm thick. Rear helical cooling fins. Stainless steel fastening kit supplied in standard format.

Sources

Latest generation LEDs with standard colour temperature of 4000K (3000K and 5000K on request).
CRI 80 rendering index.

Optics

Wide, medium, narrow and elliptical.

Supply – Wiring

1-10V standard power supply with 6/8KV protection.
Connection system with five-pole cable.



Light sources

Next-generation CSP LEDs to optimize performance



Front screen

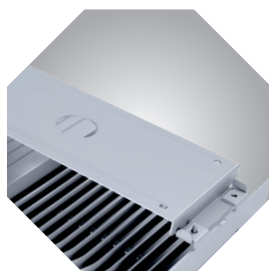
Made in extra-clear glass, 4 mm thick, for maximum strength



Strength and versatility

The small dimensions make the product easy to use in any situation

Suspension options



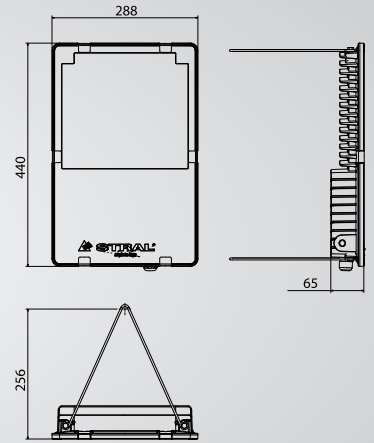
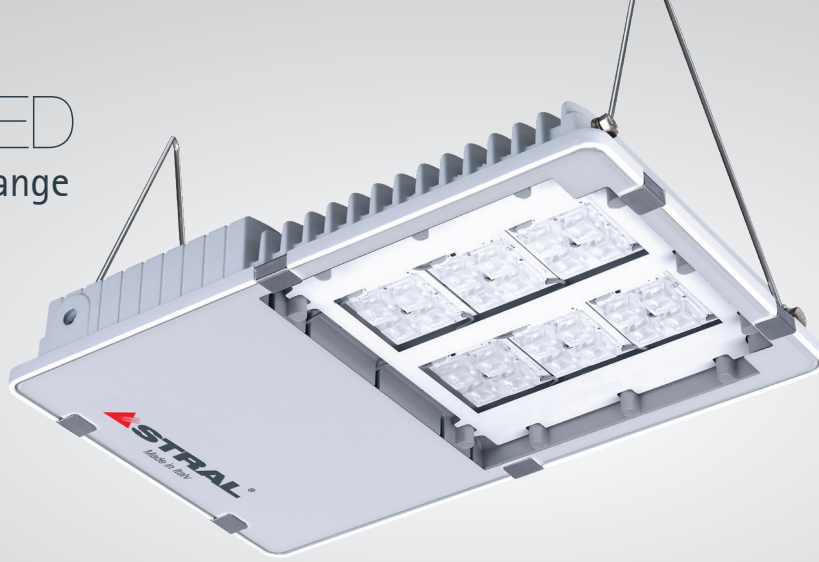
Ceiling



Double chain adjustable

KAE LED

Suspension range



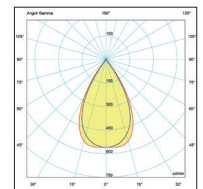
- IP66**
Ingress protection rating
- IK07**
Degree of impact resistance
- 
Resistant to ISO9223 standard corrosion
- 
Flicker free
- 
Risk group zero
- 
Energy saving
- 
1-10V standard
- 
File LDT
- 
Years Warranty

Professional suspension luminaires Wide beam – glass diffuser

4000K - CRI ≥ 80 - DIMM. - IP66

A A+ A++

Code	Description	LED nominal flux T _j =25°C (lm)	Output flux (lm)	Power (W)
9602421	8 LED 67W WIDE 1-10V IP66	9000	8064	67
9602431	12 LED 99W WIDE 1-10V IP66	13500	11944	99
9602441	16 LED 132W WIDE 1-10V IP66	18000	15926	132
9602451	20 LED 153W WIDE 1-10V IP66	22500	18032	153
9602461	24 LED 182W WIDE 1-10V IP66	27000	22100	182

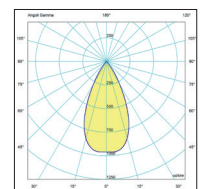


Professional suspension luminaires Medium beam – glass diffuser

4000K - CRI ≥ 80 - DIMM. - IP66

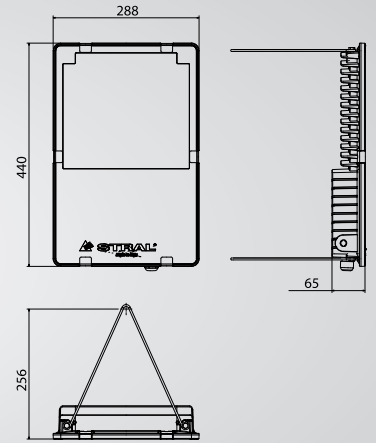
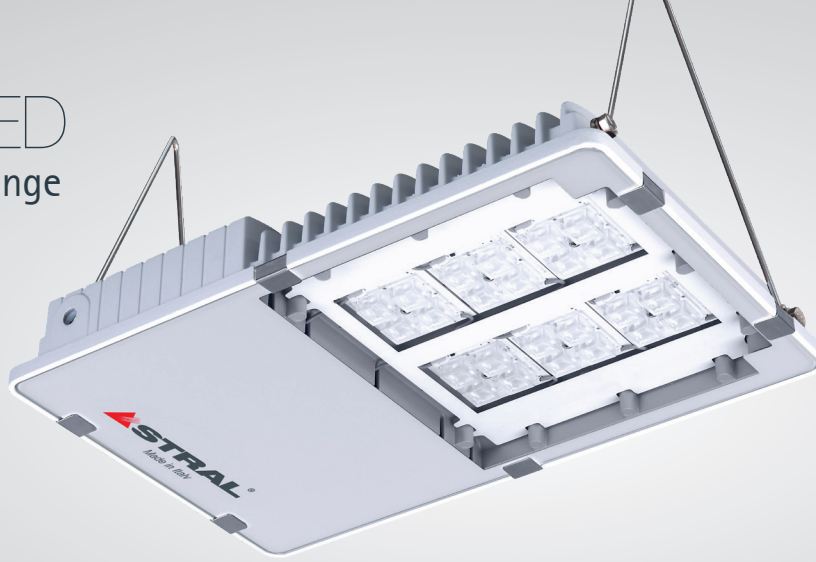
A A+ A++

Code	Description	LED nominal flux T _j =25°C (lm)	Output flux (lm)	Power (W)
9602426	8 LED 67W MED 1-10V IP66	9000	7577	67
9602436	12 LED 99 W MED 1-10V IP66	13500	11218	99
9602446	16 LED 132W MED 1-10V IP66	18000	14957	132
9602456	20 LED 145W MED 1-10V IP66	22500	17069	145
9602466	24 LED 170W MED 1-10V IP66	27000	20208	170



KAE LED

Suspension range



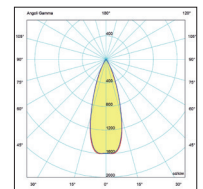
- IP66**
Ingress protection rating
- IK07**
Degree of impact resistance
- 
Resistant to ISO9223 standard corrosion
- 
Flicker free
- 
Risk group zero
- 
Energy saving
- 
1-10V standard
- 
File LDT
- 
Years Warranty

Professional suspension luminaires Narrow beam – glass diffuser

4000K - CRI ≥ 80 - DIMM. - IP66

A A+ A++

Code	Description	LED nominal flux T _j =25°C (lm)	Output flux (lm)	Power (W)
9602427	8 LED 67W NRW 1-10V IP66	9000	7515	67
9602437	12 LED 99W NRW 1-10V IP66	13500	11123	99
9602447	16 LED 132W NRW 1-10V IP66	18000	14831	132
9602457	20 LED 145W NRW 1-10V IP66	22500	17069	145
9602467	24 LED 170W NRW 1-10V IP66	27000	20208	170

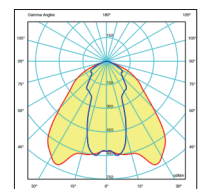


Professional suspension luminaires Elliptical beam – glass diffuser

4000K - CRI ≥ 80 - DIMM. - IP66

A A+ A++

Code	Description	LED nominal flux T _j =25°C (lm)	Output flux (lm)	Power (W)
9602428	8 LED 67W ELLIPT 1-10V IP66	9000	7728	67
9602438	12 LED 99W ELLIPT 1-10V IP66	13500	11444	99
9602448	16 LED 132W ELLIPT 1-10V IP66	18000	15258	132
9602458	20 LED 153W ELLIPT 1-10V IP66	22500	17418	152
9602468	24 LED 182W ELLIPT 1-10V IP66	27000	20627	182

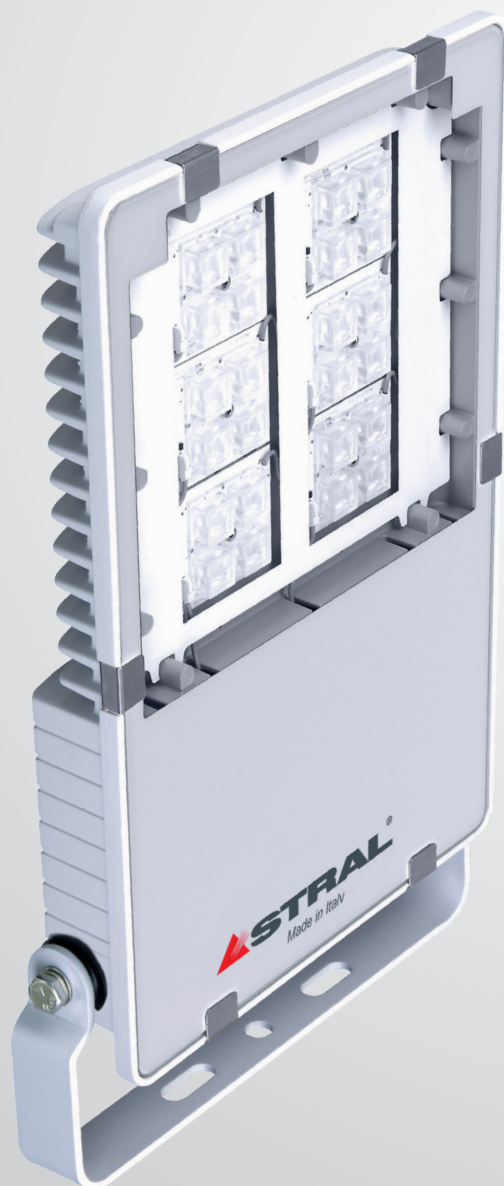


The values shown in the tables have tolerances of +/- 7%

KAE PROJECTOR

Ideal for lighting:

- Sports facilities
- Outdoor industrial areas
- Shopping centers
- Green spaces
- Monuments and facades



Type

Professional lighting fixture for projection.

Body

Die-cast aluminium body with low EN44300 copper content with anti-corrosion treatment, painted in metallic silver colour. Extra clear tempered glass diffuser, 4 mm thick. Radiant rear cooling fins. Adjustable painted galvanized steel bracket with graded system for setting.

Sources

Newest generation LEDs with 4000K colour temperature (3000K and 5000K available on request). CRI colour rendering index greater than 80.

Optics

Symmetric wide beam, asymmetric narrow beam, asymmetric wide beam, street beam.

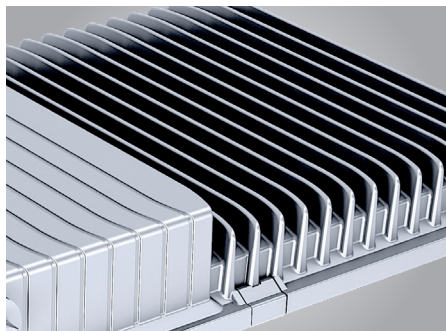
Supply - Wiring

ON-OFF power supply with 6/8KV protection.
Connection system with two-pole cable.



Photobiological risk

Exempted according to EN62471



Dissipation system

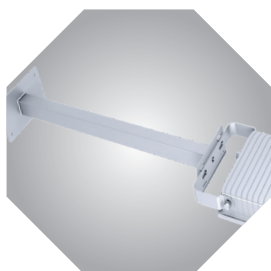
Natural convection



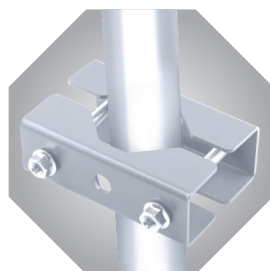
Ease of use

Adjustable graduated bracket

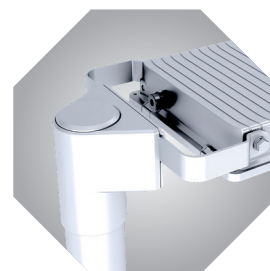
Suspension options



Bracket for wall-mounting



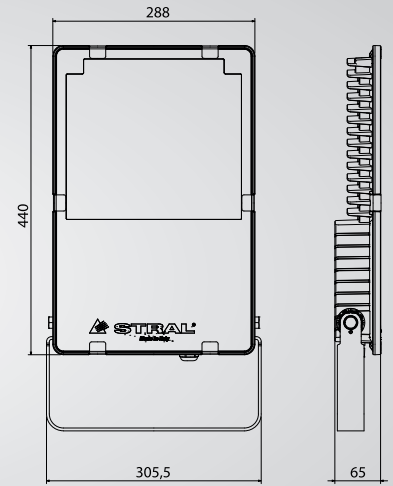
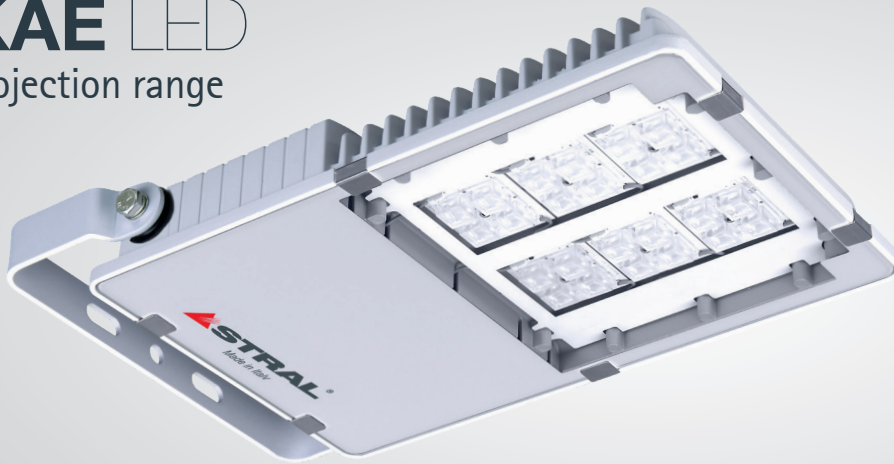
Pole collar (adaptor)



Pole top spigot (adaptor)

KAE LED

Projection range



IP66

Ingress protection rating

IK07

Degree of impact resistance



Resistant to ISO9223 standard corrosion



Flicker free



Risk group zero



Energy saving



File LDT



Years Warranty

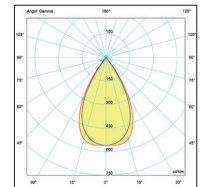
Professional projectors

Symmetric wide beam light – glass diffuser

4000K - CRI ≥ 80 - NO DIMM. - IP66

A A+ A++

Code	Description	LED nominal flux T _j =25°C (lm)	Output flux (lm)	Power (W)
9601421	8 LED 67W SYM-WIDE IP66	9000	8064	67
9601431	12 LED 99W SYM-WIDE IP66	13500	11944	99
9601441	16 LED 132W SYM-WIDE IP66	18000	15926	132
9601451	20 LED 153W SYM-WIDE IP66	22500	18032	153
9601461	24 LED 182W SYM-WIDE IP66	27000	22100	182



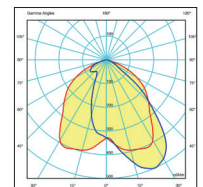
Professional projectors

Asymmetric wide beam – glass diffuser

4000K - CRI ≥ 80 - NO DIMM. - IP66

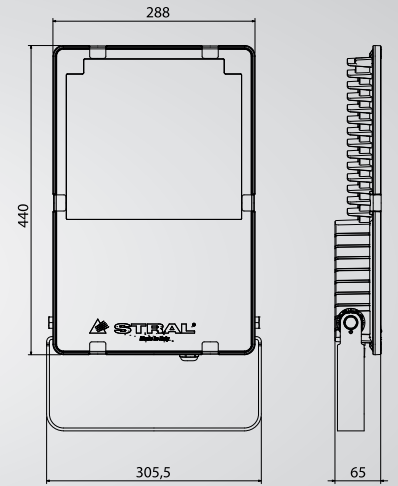
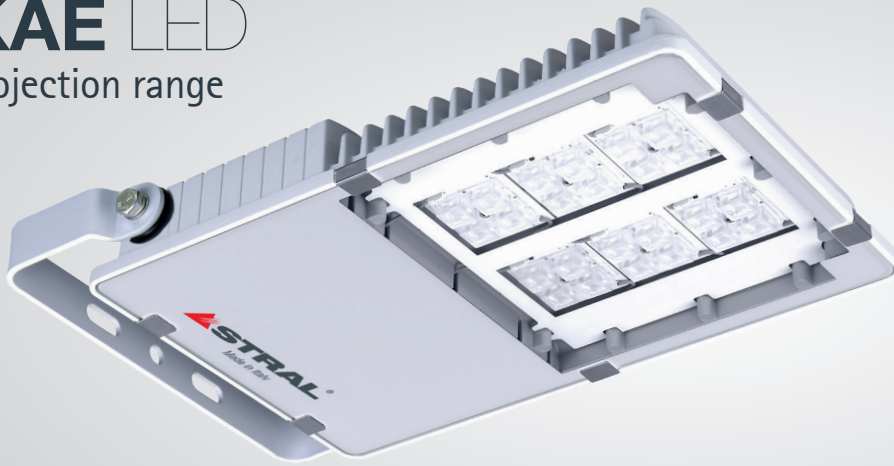
A A+ A++

Code	Description	LED nominal flux T _j =25°C (lm)	Output flux (lm)	Power (W)
9601423	8 LED 67W ASYM-WIDE IP66	9000	7966	67
9601433	12 LED 99W ASYM-WIDE IP66	13500	11798	99
9601443	16 LED 132W ASYM-WIDE IP66	18000	15731	132
9601453	20 LED 145W ASYM-WIDE IP66	22500	17631	145
9601463	24 LED 170W ASYM-WIDE IP66	27000	21058	170



KAE LED

Projection range



IP66

Ingress protection rating

IK07

Degree of impact resistance



Resistant to ISO9223 standard corrosion



Flicker free



Risk group zero



Energy saving



File LDT

5

Years Warranty

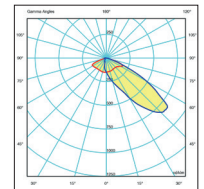
Professional projectors

Asymmetric narrow beam – glass diffuser

4000K - CRI ≥ 80 - NO DIMM. - IP66

A A+ A++

Code	Description	LED nominal flux T _j =25°C (lm)	Output flux (lm)	Power (W)
9601424	8 LED 67W ASYM-NRW IP66	9000	8051	67
9601434	12 LED 99W ASYM-NRW IP66	13500	11925	99
9601444	16 LED 132W ASYM-NRW IP66	18000	15900	132
9601454	20 LED 145W ASYM-NRW IP66	22500	17823	145
9601464	24 LED 170W ASYM-NRW IP66	27000	20899	170



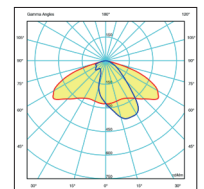
Professional projectors

Street beam – glass diffuser

4000K - CRI ≥ 80 - NO DIMM. - IP66

A A+ A++

Code	Description	LED nominal flux T _j =25°C (lm)	Output flux (lm)	Power (W)
9601425	8 LED 67W STREET IP66	9000	7584	67
9601435	12 LED 99W STREET IP66	13500	11227	99
9601445	16 LED 132W STREET IP66	18000	14970	132
9601455	20 LED 145W STREET IP66	22500	17084	145
9601465	24 LED 170W STREET IP66	27000	20226	170





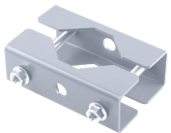
Support bracket
for ceiling mounting

Material	Code
Galvanized steel	71004



Support bracket
for 0-90° adjustable double chain suspension

Material	Code
Galvanized steel	71005



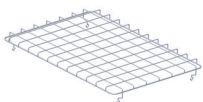
Kit composed of collar and plate
for fixing on from Ø 60mm to Ø 80mm pole

Material	Code
Galvanized steel	71002



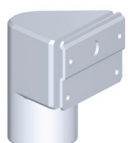
Support for wall mounting
with 750mm projection

Material	Code
Galvanized steel	71001



Protective wire guard

Material	Code
Galvanized steel	71003



Universal spigot adaptor
for pole-head fixing for Ø 60mm and Ø 76mm

Material	Code
Galvanized steel	71000

KAE LED

Technical specifications

Body material	Aluminium alloy
Surface treatment	Passivation with fluorozirconium
Diffuser material	Extra-clear tempered glass
Painting	Hot polymerized non-toxic polyester
Colour	Metallic silver
Weight	6,5 Kg max
LED device efficiency	≥ 120 lm/W
LED colour temperature	4000K (3000K and 5000K available on demand)
CRI	≥ 80
Insulation class	I for suspension / II for projector
Rated voltage	200-240 V 50-60 Hz
Protection against surge discharges	Common mode at 8 kV Differential mode at 6 kV (EN 61000)
Power factor	≥ 95
Glare control	(UGR) ≤ 22
Cable section	1,5mm ²
Cable length	150 cm
Estimated device lifetime	L80 B20 @ 90.000h Tq=-30 °C - +40 °C
Storage temperature	-40 °C - +70 °C
Operating temperature	-30 °C - +40 °C (on request up to +55 °C or other special configurations)

Conformity to standards:

Directive 2014/35 / EU, EN 60598-1: 2015, EN 60598-2-1: 1997, EN 60598-2-5: 2015, EN 60598-2-22: 2014, EN 62471: 2008, Directive 2014/30 / EU, EN 62493: 2015, Directive 2011/65 / EU, IEC/EN 62262, ENEC approval in progress.



RODI LED



The advantages:

- Robust and compact
- Stainless steel body and tempered glass screen
- Replacement of fluorescent linear luminaires
- Linear LED layout to uniform light
- Low level of glare and flicker
- Absence of welds
- Energy saving
- Versatility of installation
- Wide range of accessories
- Easy, fast and safe installation



RODI LED

The perfect solution for the lighting of industrial spaces, technological rooms, maintenance centers, commercial premises.

RODI LED was created to replace fluorescent linear luminaires, allowing significant energy savings while maintaining the same level of illumination.

IP66

Ingress protection rating

IK09

Degree of impact resistance



Resistant to ISO9223 standard corrosion



Flicker free



Risk group zero



Energy saving



File LDT



Years Warranty

Thanks to its stainless steel AISI 316L body, RODI LED is particularly recommended for difficult applications or in installation solutions where it is advisable to use these materials, which guarantee high impact resistance (IK09).

The extra-clear glass diffuser is designed for maximum protection of LED sources and lenses in all types of installation. Different

specific beams of light, and high yields make RODI LED the ideal solution for industrial lighting applications (production sites), logistics centers (warehouses, storage centers), commercial premises (shopping centers) or transit (stations, airports, subways).

RODI LED

Ideal for lighting:

- Technological premises
- Industrial areas
- Shopping centers
- Underground parking



Type

Professional light fixture for ceiling, busbar, wall and suspended installation.

Body

Body in stainless steel AISI 316L.
Diffuser in extra-clear transparent glass.

Sources

Midpower LEDs with 4000K colour temperature (3000K and 5000K on request).
CRI colour rendering index > 80.

Optics

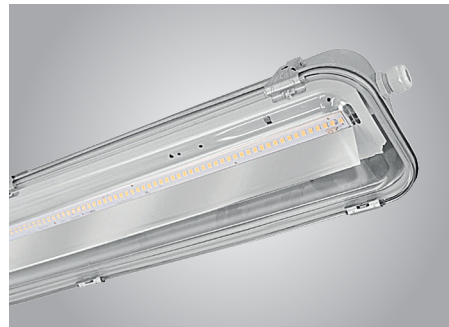
Wide and narrow light beams with secondary lens.

Supply - Wiring

ON-OFF 2KV power supply. Power supply system with quick-fit connector, cable tightening from 7 to 13 mm.



Interchangeability
With current fluorescence solutions



Photometric distributions
Wide and narrow light beams through the use of optics



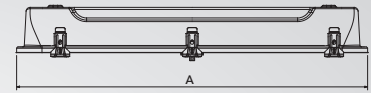
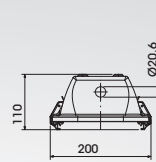
Diffuser
Extra-clear tempered glass screen



Body in AISI 316L stainless steel
with non-welded joints
for applications in particularly aggressive environments

RODI LED

Suspension range



Type LED	A (mm)	B (mm)
26W-40W	690	430
52W-63W	1300	950

IP66

Ingress protection rating

IK09

Degree of impact resistance



Resistant to ISO9223 standard corrosion



Flicker free



Risk group zero



Energy saving



File LDT



Years Warranty

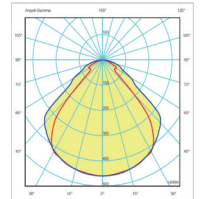
Linear ceiling lighting fixtures in stainless steel

Wide beam – glass diffuser

4000K - CRI ≥ 80 - NO DIMM. - IP66 cl. I

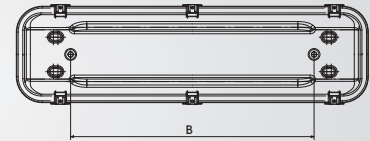
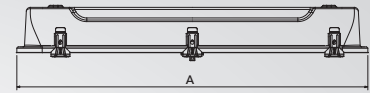
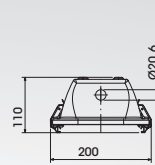
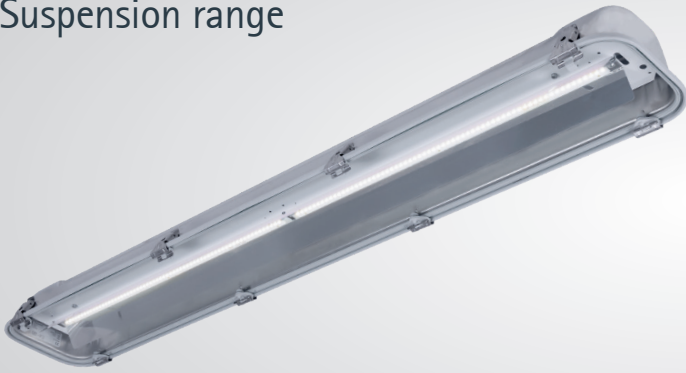
A A+ A++

Code	Description	LED nominal flux T _j =25°C (lm)	Output flux (lm)	Power (W)
9701412	LED 26W WIDE IP66 690x200x100mm	3980	3560	26
9702412	LED 40W WIDE IP66 690x200x100mm	6250	5400	40
9703412	LED 52W WIDE IP66 1300x200x100mm	7950	7070	52
9704412	LED 63W WIDE IP66 1300x200x100mm	10670	8630	63



RODI LED

Suspension range



Type LED	A (mm)	B (mm)
52W-63W-75W	1300	950

IP66

Ingress protection rating

IK09

Degree of impact resistance



Resistant to ISO9223 standard corrosion



Flicker free



Risk group zero



Energy saving



File LDT



Years Warranty

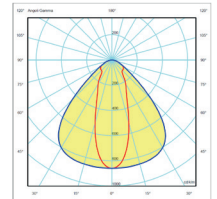
Linear ceiling lighting fixtures in stainless steel

Narrow beam - glass diffuser

4000K - CRI ≥ 80 - NO DIMM. - IP66 cl. I

A A+ A++

Code	Description	LED nominal flux T _j =25°C (lm)	Output flux (lm)	Power (W)
9702421	LED 52W NRW IP66 1300x200x100mm	7950	6500	52
9703421	LED 63W NRW IP66 1300x200x100mm	10670	8000	63
9704421	LED 75W NRW IP66 1300x200x100mm	11830	9370	75





Pair of "V" brackets
for ceiling installation

Material	Code
Sainless steel	72001



Pair of swivelling supports
for ceiling or wall mounting

Material	Code
Sainless steel	72000



Pair of collars
for mounting on tube

Material	Code
Sainless steel	72002

RODI LED

Technical specifications

Body material	AISI 316L stainless steel
Diffuser material	Extra-clear glass
LED colour temperature	4000K (3000K and 5000K on request)
CRI	≥ 80
Insulation class	I
LED device efficiency	≥ 125 lm/W
Nominal voltage	230 V 50-60 Hz
Protection against surge discharges	2 kV (EN 61000)
Power factor	≥ 0,9
Maximum cable section	2,5 mm ²
Cable entry diameter	7-13 mm
Estimated device lifetime	L80 B20 @ 50.000h Tq=-25 °C
Storage temperature	-40 °C - +70 °C
Operating temperature	-25 °C - +45 °C (Special solutions for storage at extremely low temperatures available on request)

Conformity to standards:

Directive 2014/35 / EU, EN 60598-1: 2015, EN 60598-2-1: 1997, EN 60598-2-22: 2014, EN 62471: 2008, Directive 2014/30 / EU, EN 62493: 2015, Directive 2011/65 / EU , IEC/EN 62262

Standard equipment: pair of eyebolts for suspended installation.



CRETA LED



The advantages:

- Robust and compact
- Alternative to old filament devices
- Equipped with LED plate
- Front light distribution for maximum efficiency
- Energy saving
- Body in die-cast aluminium and structured glass
- Versatility of installation
- Easy, fast and safe installation
- 230V mains supply

CRETA LED is the range of ceiling round and oval luminaires for industrial lighting, service lighting, power plants, lighting on machine board.

The compact body, entirely made of die-cast aluminium with low copper content, guarantees high impact resistance (IK10). Thanks to its IP66 protection rating, CRETA LED is ideal for particularly critical environments, both indoors and outdoors.

Ideal for replacing compact fluorescent or filament luminaires.

IP66

Ingress protection rating

IK10

Degree of impact resistance



Resistant to ISO9223 standard corrosion



Flicker free



Risk group zero



Energy saving



File LDT

The front screen is made with tempered thermoformed glass. It is possible to apply a protective grid on it.

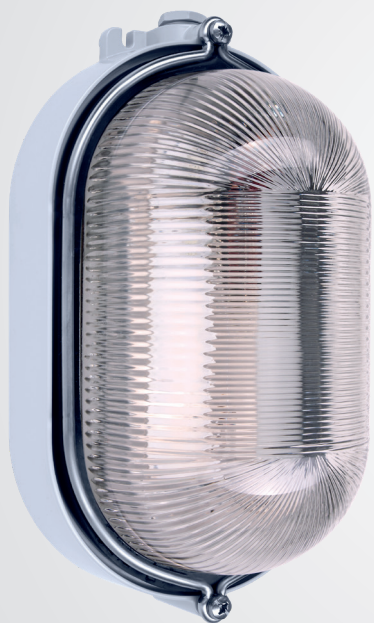
For this type of application, have been selected LED technologies operating at mains voltage without the aid of a power supply/

transformer. Two shapes (oval and round) and three dimensions, offer different light flows for every solution, like control stations, underground car parks, industrial areas, power plants and technological premises.

CRETA LED

Ideal for lighting:

- Industrial areas
- Shopping centers
- Control Stations
- Underground parking
- Technological premises



Type

Professional light fixture for ceiling and wall installation.

Body

Die-cast aluminium body.

Extra-clear thermoformed structured glass diffuser.

Sources

Mains voltage Midpower LEDs with 4000K colour temperature (3000K and 5000K available on request).

CRI colour rendering index > 80.

Optics

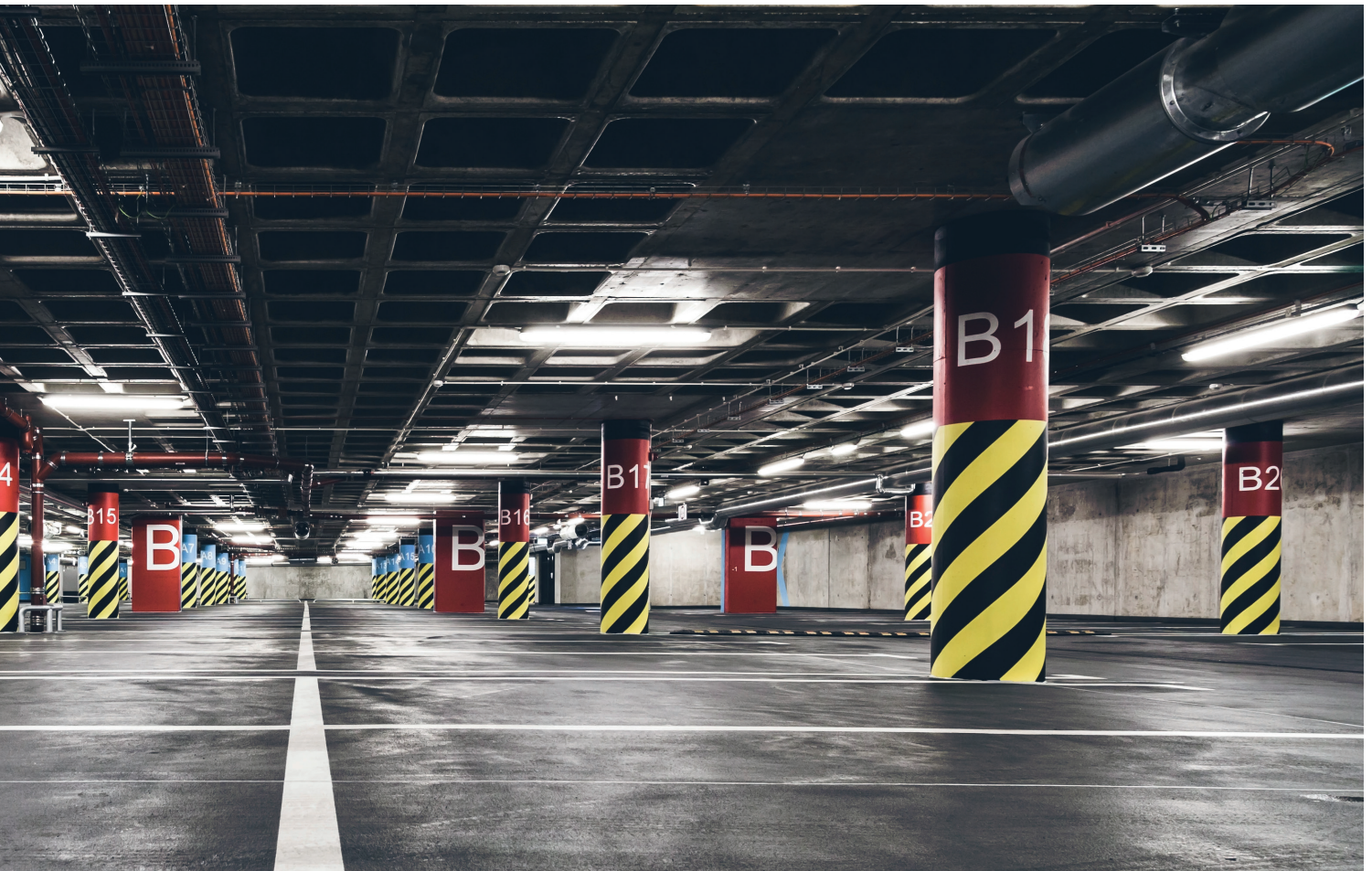
Wide beam of light.

Supply - Wiring

230V direct power supply. Technopolymer M20 cable gland.

Insulation class: I.

7-13 mm cable.



CRETA LED

Technical specifications

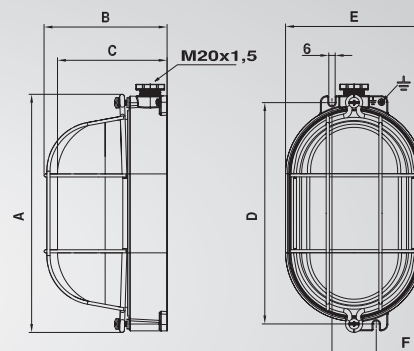
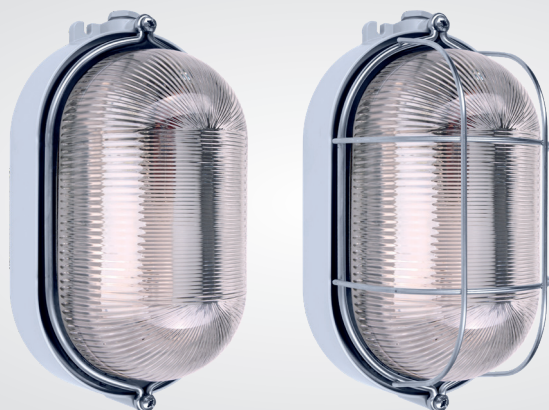
Body material	Aluminium alloy
Surface treatment	Passivation with fluorozirconium
Diffuser material	Extra-clear tempered glass
Painting	Hot polymerized non-toxic polyester
Colour	Metallic silver
Weight	2,5 Kg max
LED device efficiency	≥ 70 lm/W
LED colour temperature	4000K (3000K and 5000K available on demand)
IRC	≥ 80
Cable entry diameter	7-13 mm
Estimated device lifetime	L70 B50 @ 50.000h
Storage temperature	-50 °C - +80 °C
Operating temperature	-25 °C - +40 °C

Conformity to standards:

Directive 2014/35 / EU, EN 60598-1, EN 60598-2-1, Directive 2011/65 / EU, EN 50581 , EN60598-1, IEC/EN 62262.

CRETA LED

Range



Power (W)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
8,7	226	122	105	210	130	42
13	295	142	127	278	170	52

IP66

Ingress protection rating

IK10

Degree of impact resistance



Resistant to ISO9223 standard corrosion



Flicker free



Risk group zero



Energy saving



File LDT

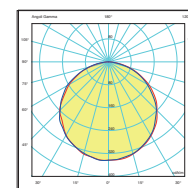
Oval aluminum alloy ceiling luminaire

Wide beam - glass diffuser

CRI ≥ 80 - NO DIMM. - IP66 cl. I

A A+ A++

Code	Description	LED nominal flux T _j =25°C (lm)	Output flux (lm)	Power (W)
9710131	LED 8,7W 3000K WIDE IP66 226x130	720	576	8,7
9710132	LED 13W 3000K WIDE IP66 295x170	1150	920	13
9710141	LED 8,7W 4000K WIDE IP66 226x130	780	624	8,7
9710142	LED 13W 4000K WIDE IP66 295x170	1210	968	13



CRETA LED

Accessories

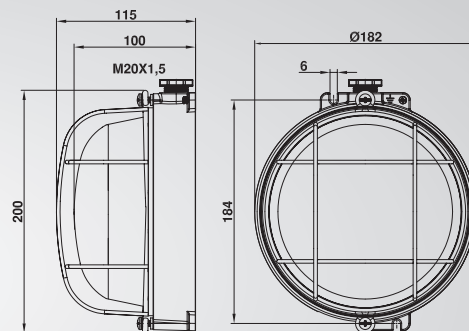
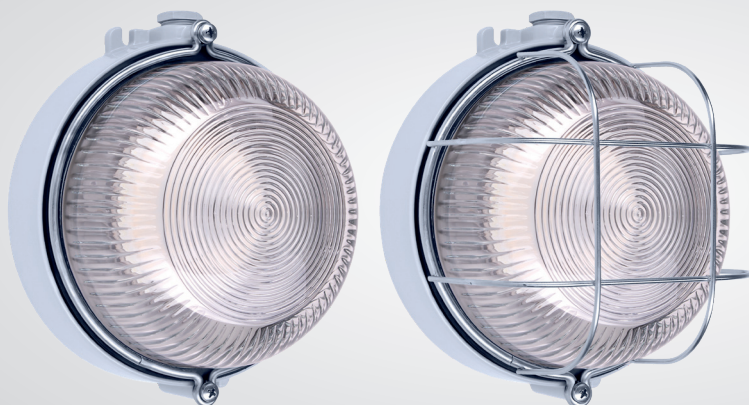


Oval cage

Material	Dimensions	Code
Steel	266x130	57001
Steel	295x170	57002

CRETA LED

Range



Power (W)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
10	200	115	100	184	182	52

IP66

Ingress protection rating

IK10

Degree of impact resistance



Resistant to ISO9223 standard corrosion



Flicker free



Risk group zero



Energy saving



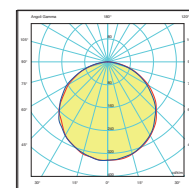
File LDT

Round aluminium alloy ceiling luminaire Wide beam - glass diffuser

CRI ≥ 80 - NO DIMM. - IP66 cl. I

A A+ A++

Code	Description	LED nominal flux T _j =25°C (lm)	Output flux (lm)	Power (W)
9720233	LED 10W 3000K WIDE IP66 200x182	1020	816	10
9720243	LED 10W 4000K WIDE IP66 200x182	1060	848	10



CRETA LED

Accessories



Round cage

Material	Code
Steel	57000



Modern lighting systems, increasingly, can not be limited to switching on and off lighting devices. Today, artificial lighting must be conceived as an integral element of the environment comfort and management, based on energy efficiency.

This approach leads to situations that we can define as pre-defined lighting scenarios, possibly with the integration of control related to the presence in spaces and to the available natural light amount. In addition, the solution must also be very easy to use and must send feedback messages to a management system.

Today, on the market, there are several technologies that can offer what is described above. In detail, we can group this into two macro-families:

- Wireless control and driving systems (SENSORS, Bluetooth, etc.).
- Wired control and driving systems (1-10 V, DALI, etc.).

Both solutions require a specific project in which STRAL luminaires, thanks to the type of power supply used, can correctly work according to the given command.

Integration with other Building Management Systems

The possibility of integrating lighting devices into a context of Building Management Systems allows to:

Optimize performance

Possibility to integrate natural light and artificial light.

Increase visual comfort

All the light you need, only when you need it. Through continuous management, that allows light stability on the work surface.

Energy saving

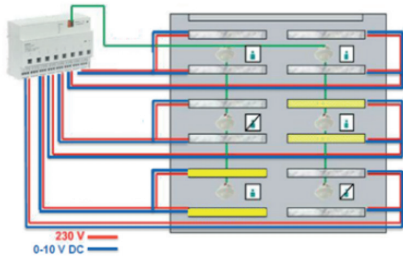
Manage lighting levels continuously to achieve energy savings up to 60%.

Environmental sustainability

Lower energy consumption to make a significant contribution to CO₂ reduction.

Wired control and driving systems

Today, the most widely used solutions are 1-10Volt technologies and DALI. Both are suitable for communication with STRAL lighting systems, considering the particularities of each system.



1-10Volt wiring diagram. In this case, even with a simple setting system, all devices inserted in the same line can be dimmed. With this solution, all devices will be set simultaneously to the same value.

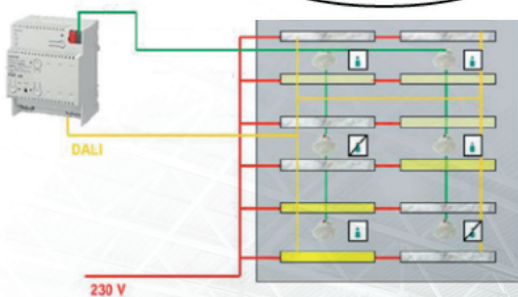
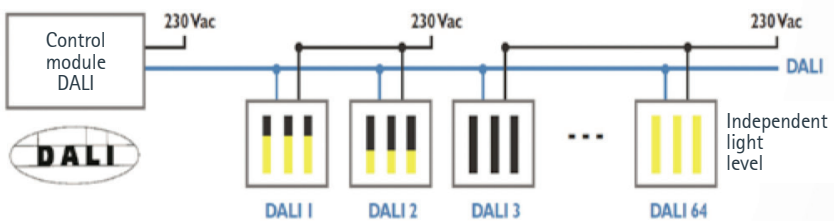
DALI

(Digital Addressable Lighting Interface)

Is a standard digital technology capable of unambiguously addressing up to 64 devices on the same bus.

Box with DALI 1-10V transducer module

ZANTE models are equipped with a 1-10V power supply. If it is necessary to use the DALI system, simply use the DALI 1-10V external transducer and connect it as shown in the attached diagram.

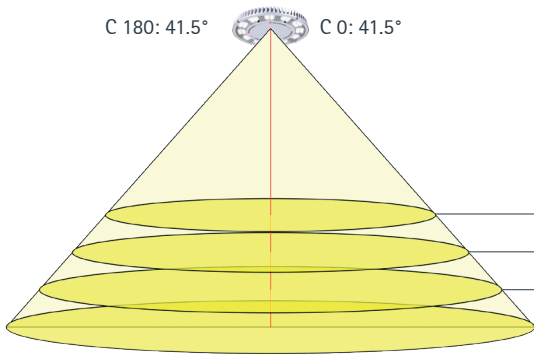


DALI wiring diagram. With this interface system, it is possible to independently control each lighting body. In this way everyone can operate independently of others.

Average lighting maintained and required by EN 12464-1: 2011

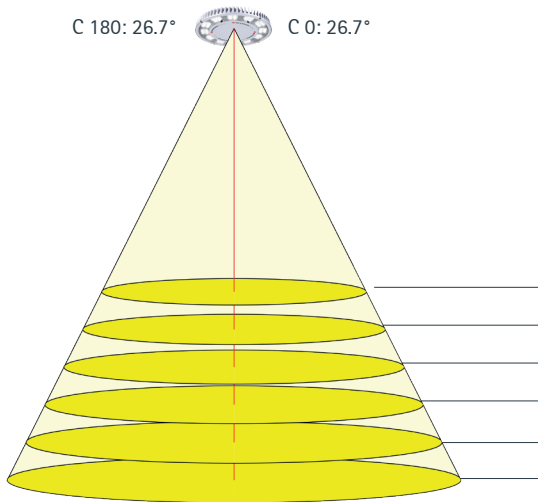
COMMERCIAL AND/OR EXHIBITION ENVIRONMENTS	Em (lx)	Glare (UGR)	CRI minimum
Sales areas	300 (1)	22 (1)	80
Cash desk	500	19	80
Trade fairs, exhibition pavilions (general lighting)	300	22	80
INDUSTRIAL AND HANDICRAFT ENVIRONMENTS	Em (lx)	Glare (UGR)	CRI minimum
Chemical, plastic and rubber industry			
Workplaces with continuous staff presence	300	25	80
Precision measurement environments, laboratories	500	19	80
POWER STATIONS	Em (lx)	Glare (UGR)	CRI minimum
Fuel supply system	50		20
Boiler room	100	28	40
Engine room	200	25	80
Pump rooms, condensers, control panels	200	25	60
Control rooms	500	16	80
WAREHOUSES - REFRIGERATED WAREHOUSES	Em (lx)	Glare (UGR)	CRI minimum
Storage areas	100	25	60
Movement, packing and shipping areas	300	25	60
Warehouses with shelves - without staff	20		40
Warehouses with shelves - staff presence	150	22	60
Control station	150	22	60
INTERIOR SPORTS ENVIRONMENTS (C.O.N.I) (2) - Standards EN 12193	Em (lx)	Glare (UGR)	CRI minimum
Exercises rooms	300		
Athletics	200-300-500		
Bowling	200-300-500		
Swimming pool	200-300-500		
Wrestling, weightlifting, judo	300-500		
Basketball, Volleyball	300-500-750		
Boxing	300-500		
Tennis	200-300-750		
Ping Pong	300-500-700		
Target shooting	300-500		
Archery	150-300-400		
INDOOR PARKING	Em (lx)	Glare (UGR)	CRI minimum
Taxiways and parking areas (ground lighting)	75	25	20
Entry / exit ramps (during the day) (floor lighting)	300	25	20
Entry / exit ramps (during the night) (floor lighting)	75	25	20
Counter	300	19	80
OUTDOOR AREAS (CIE 129)	Em (lx)	Glare (UGR)	CRI minimum
Parking of shops, schools and communal	5		
Gross work, loading and unloading	20		
Gross work, transport and storage	50		
Paths for pedestrians	5		

Zante range - Wide beam - inter-distances for 300 LX



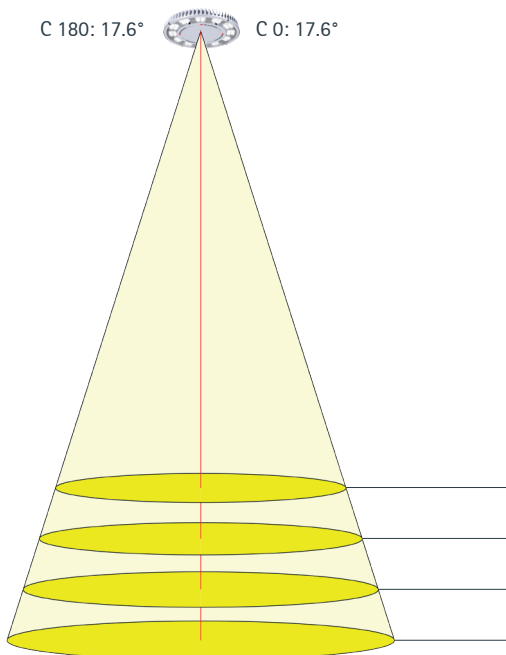
	Fixture code				
	9501141	9502141	9503241	9504341	9505341
Installation height and ground diameter (m)	Fixture installation board (m)				
5.0 (Ø 8.8)	6x6				
6.0 (Ø 10.6)	6x6	7x7	7x7		
7.0 (Ø 12.4)			7x7	8x8	9x9
8.0 (Ø 14.2)					9x9

Zante range - Medium beam - Inter-distances for 300 LX



	Fixture code				
	9501144	9502144	9503244	9504344	9505344
Installation height and ground diameter (m)	Fixture installation board (m)				
7.0 (Ø 7.0)	6x6				
8.0 (Ø 8.0)	6x6	6x6	7x7		
9.0 (Ø 9.1)		6x6	7x7	8x8	
10.0 (Ø 10.1)			7x7	8x8	8x8
11.0 (Ø 11.1)				7x7	8x8
12.0 (Ø 12.1)					8x8

Zante range - Narrow beam - inter-distances for 300 LX

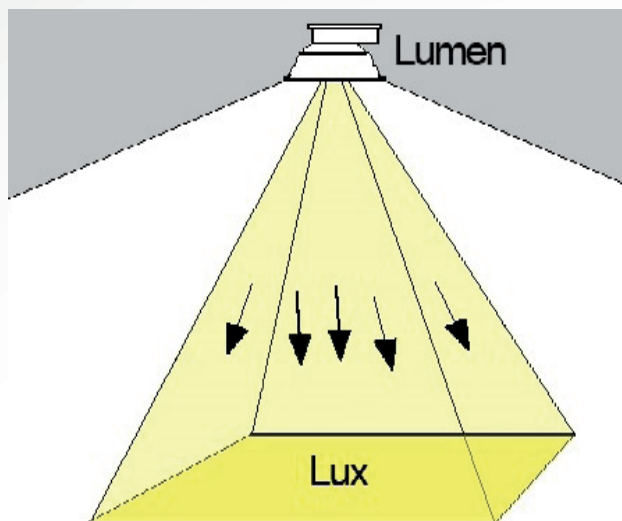


	Fixture code				
	9501142	9502142	9503242	9504342	9505342
Installation height and ground diameter (m)	Fixture installation board (m)				
9.0 (Ø 5.7)	6x6	6x6			
10.0 (Ø 6.3)	5x5	6x6	7x7		
11.0 (Ø 7.0)		6x6	7x7	7x7	
12.0 (Ø 7.6)		6x6	7x7	7x7	8x8

Lighting glossary

Luminous flux

The luminous flux defines the amount of light emitted in one second (1s); its unit of measurement is the lumen (lm) which can be divided in nominal lumens, as declared by the manufacturer of the light source, and in emitted lumens which are the effective lumens of the lighting fixture in use.



Luminous efficiency of the device

The luminous efficiency is given by the ratio between the output luminous flux and the power absorbed at the plug, power supply included. These values are used in the design phase to determine the best light source for the current project. The unit of measure is expressed in lumens/watt (lm/W).

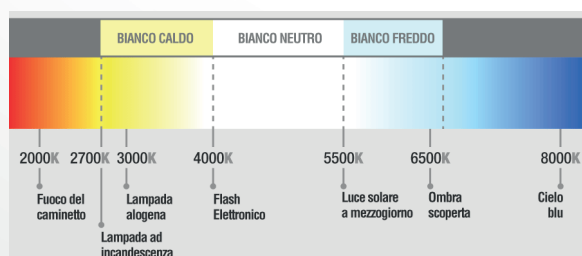
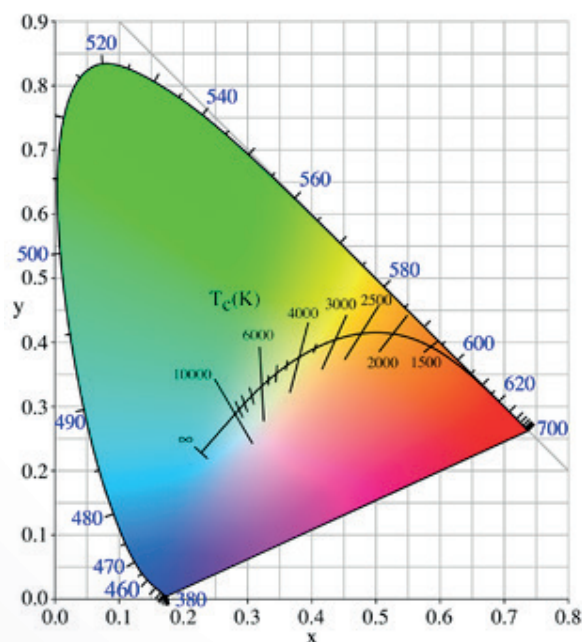


Colour temperature

Indication of the chromatic characterization of a light source, in relation to the colour of a reference source (black body) heated to a given temperature, measured in Kelvin. The CIE trichromatic diagram shows the evolution of the Planck curve along which the temperatures reached by the blackbody (also called Planck) are indicated through the different colours of the diagram. For example, a source with a 6000K colour temperature emits a cool white light, as shown in the diagram for the black body heated up to 6000K.

Color rendering index

The colour-rendering index (CRI) indicates how a source of artificial lighting returns the colour of illuminated objects. It varies on a scale from 0 to 100, and for LED technology it is between 70 and 90. These values depend on the ability of the LED to cover the emission spectrum in the visible field. The more spectrum coverage is complete, the more likely the colour of the objects will be.



UGR

Indoor workplace lighting must meet the parameters established by UNI-EN 12464-1, which aims to protect the health and visual well-being of workers. To do this, one of the most important factors to take into account concerns glare, namely the phenomenon of annoying reflection, even harmful to health, which can be generated by imperfect lighting. Glare is measured with the UGR (Unified Glare Index) ranging from 10 (no glare) to 30 (considerable glare). The lower the value is, the lower the glare is. The standards establish the maximum level of glare for the different activities. For example, for industrial applications, the UGR must be <22, for transit environments <25.



Photobiological safety

Light radiation can damage skin and eyes. Therefore, it is important to pay special attention to photobiological safety by selecting the best low-impact sources for human health. Tests are to be carried out, the risk classes and the emission limits are defined in standard EN 62471. The potential damage of the light radiation varies according to the wavelength and the dose received. The dose is given by the power for the exposure time.



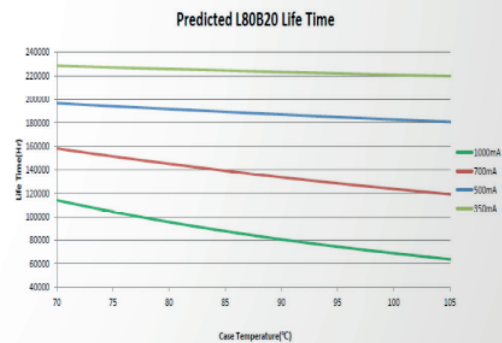
Long lasting efficiency (L)

The lifetime for traditional sources is the interval of time between the first ignition and the moment when a certain percentage of lamps cease to function. On the other hand, in LED technology, since they do not go out suddenly (except in case of breakage), these are characterized by the gradual decrease of the flow until complete disappearance. The L parameter will be used to determine the percentage of light decay with respect to useful operating hours (normally 50000). With L80: 50000h, it is defined that once the 50 000 operating hours are reached, the LED always provides 80% of the initial flow.

LED LIFE EXPECTANCY (value B).

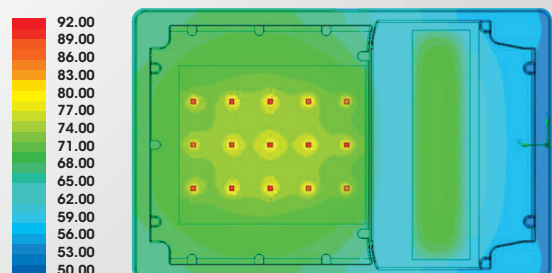
The value B followed by a value between 10 and 50 defines the percentage of LEDs which, at the expiration of 50,000 hours, will not retain the declared characteristics. Ex: L80 / B20 at 50000h indicates that when you reach 50000h (B20), 80% of the sources will have a flow equal to 80% of the initial flow (L80). If parameter B is not declared, it must be considered B50. As a result, 50% of the LEDs do not guarantee the average life shown.

- Lumen maintenance : 80% / B20
- Current condition : 1000mA / 700mA / 500mA / 350mA



Thermal management

The correct management of the junction temperature, in order to correctly dissipate the heat generated by the power supply of the LEDs, is a fundamental element to reach and maintain the declared performances over time.



«Not only industrial»

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A complete range of AISI 316L stainless steel (Marine Grade) solutions.

STRAL products, beyond traditional applications, are indicated against the attacks of atmospheric and chemical pollution, pesticides, acid rain, marine salinity, vapours of swimming pools and fountains, road antifreeze agents,

vapours of sulphurous water in thermal zones and galvanic currents. The exclusive use of AISI 316L stainless steel and the essential design characterize STRAL products, making them unique and ideal for all environmental styles and atmospheres of use.

Accent lighting

- Ground recessed
- Diffusers
- Steplight
- Wall mounting



Parks and gardens lighting

- Bollard
- Integrated systems (pole and luminaire)
- Fountain lighting
- Planted areas lighting



Streets and piers lighting

- Integrated systems (pole and luminaire)
- Lighting bodies
- Steplight



