

# metrica<sup>®</sup>

**LED**

Professional emergency luminaire

**OPTICAL ELEMENT  
WITH COMPLEX  
FACETING**

**LUMINOUS EFFICIENCY  
of up to 86%**

**LONG DURATION**

**LONG LED LIFESPAN,  
up to 100,000 hours**

**MAINTENANCE-FREE  
IP65 MODEL**

**HIGH ENERGY SAVINGS**

**UTMOST SPEED OF  
INSTALLATION**



*Design Eros Bollani*

**Beghelli**



metrica<sup>®</sup>  
LED

New product of the project:

Luce**Utile**

# metrica<sup>®</sup>

Professional emergency luminaire

# LED

The high-tech identity and value of the Beghelli brand are fully expressed in the MetricaLED project: LED emergency luminaires with a calibrated light beam.

Every now and then the design of a product follows function: the philosophy of MetricaLED arises from the need to obtain an ideal

light beam for emergency lighting while achieving the highest luminous efficiency possible. The optical element has been specifically designed to solve the problem of providing the required illuminance at floor level with the least number of fixtures, in compliance with the values established by current regulations.

## **LUCE UTILE: THE CALIBRATED CHOICE FOR ESCAPE ROUTES**

Beghelli's aim is basically to re-establish a correct relationship between the rules of lighting engineering and the need to have a product described based on actual performance.

Beghelli has already created UtilLED, a high-efficiency LED emergency luminaire capable of producing a universal photometric solid

for both wall and ceiling mounted applications. Today, with the MetricaLED project, Beghelli aims to underscore its commitment to the design of increasingly specialised emergency lighting fixtures, in line with new design philosophies.

**It doesn't matter how much light a luminaire emits.**

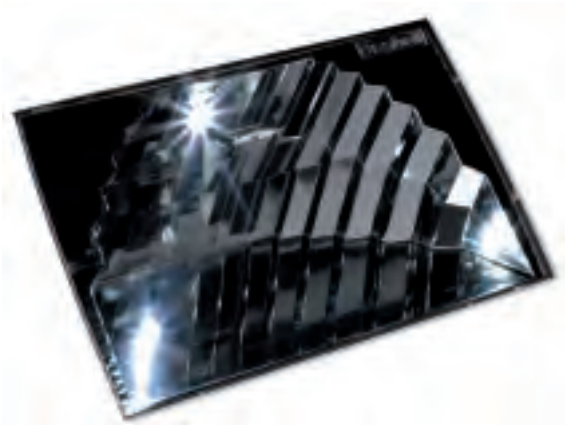
**It's what that light shows which makes it important, transforms it into a useful light emitting fixture.**

**All light beyond the controlled beam is only a waste of energy.**

### **BROAD DIMENSIONS OF THE LIGHT BEAM**

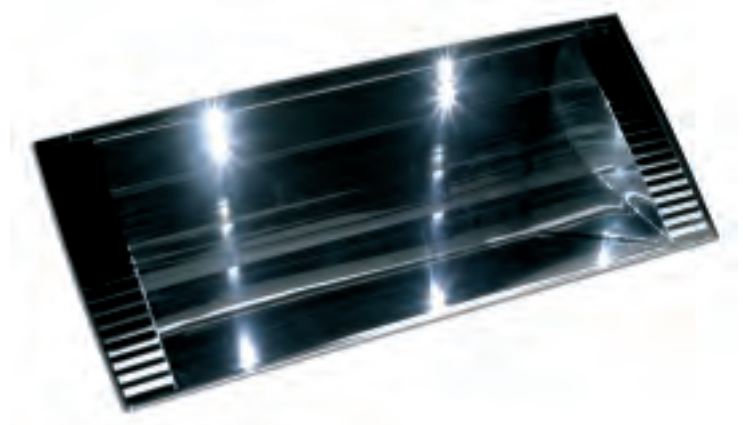
In a single product, the MetricaLED series of emergency luminaires combines all of the technological features required to obtain correct lighting without wasting energy. The large dimensions of the calibrated beam are obtained by using an optical element with complex faceting: the high-reflectance metallized polycarbonate louver was developed by the Beghelli research centre, always attentive to technological innovation as it seeks to exploit the most recent scientific research on the control of light beams for civil applications.

Thanks to the use of latest generation software and previous experience in the application of punctiform light sources - already explored and experimented with in the design of UtilLED - an unprecedented reflector geometry has been conceived. By maintaining the light beam constant thanks to a wide-beam louver, and integrating sequential planes of reflection, a beam of ideal dimensions has been obtained, in terms of both uniformity and amplitude. The LED projects to the floor or ground every single ray emitted, providing solely light that is useful for emergency lighting purposes.



*Efficiency of 6-11 W optical element*

# 86%



*Efficiency of 8-18-24 W optical element*

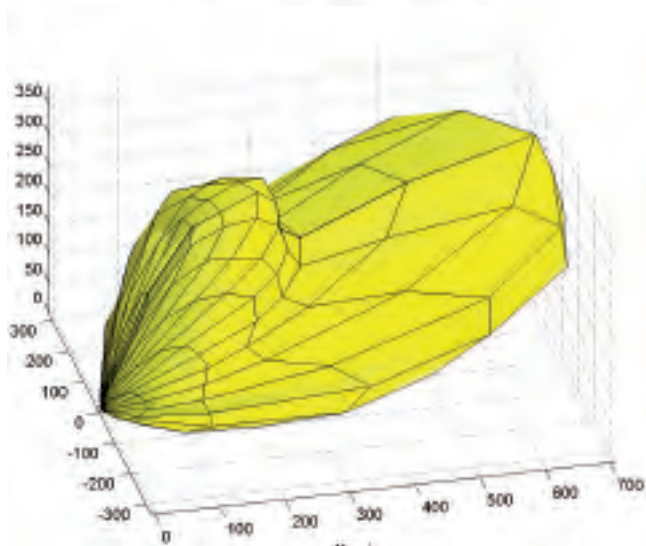
# 82%

### **LUMINOUS EFFICIENCY OF UP TO 86%**

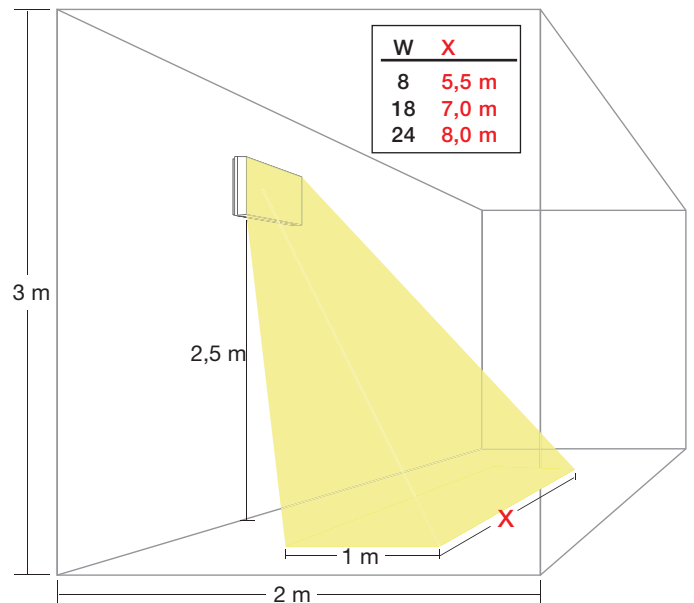
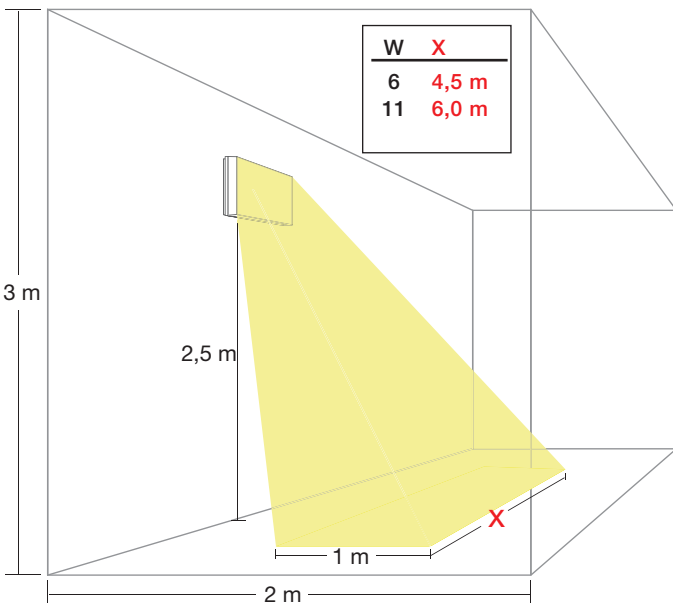
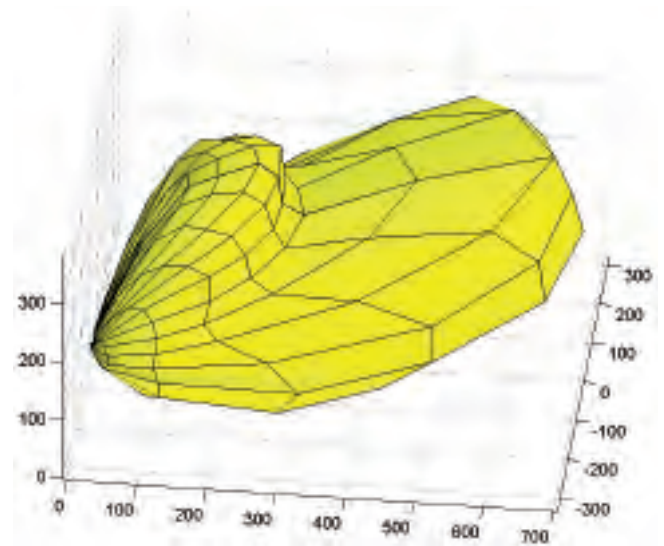
The optical assemblies of MetricaLED have been designed to allow individual light beams to be composed into a single photometric diagram suited to the situation. Each facet making up the optical element of MetricaLED has been individually dimensioned according to principles derived from the latest research conducted in the automotive sector.

Besides boasting a highly attractive appearance, the optical elements of MetricaLED have given truly surprising photometric results, especially as regards the luminous efficiency of the optical element, which, in the 6-11 W model, is as high as 86%.

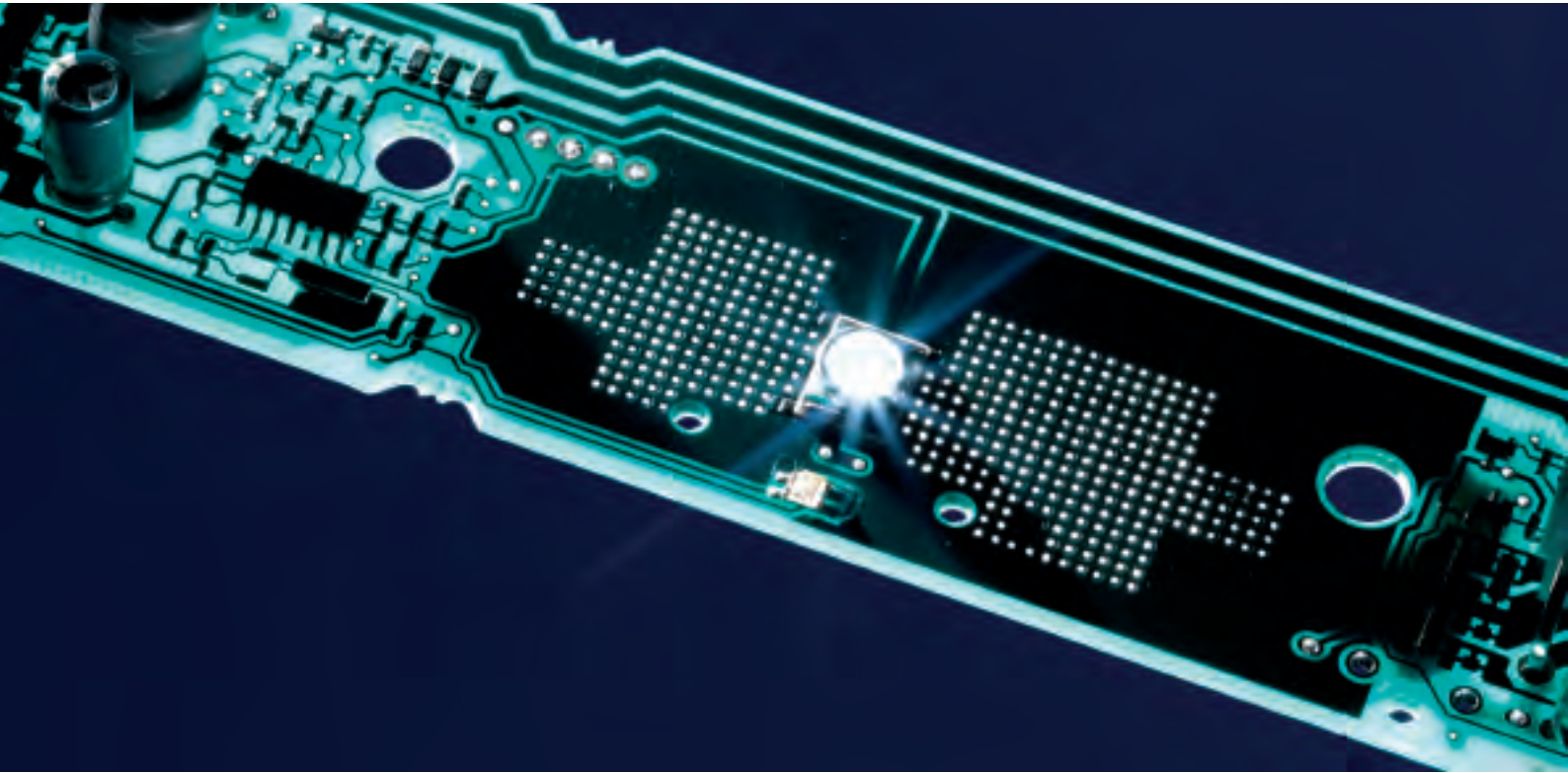
COMPLEX OPTICAL ELEMENT 6-11 W



COMPLEX OPTICAL ELEMENT 8-18-24 W



***Large-Area Lighting***



### LED: LIGHT EMITTING DIODE

A light source only a few millimetres in size constructed using semi-conductors capable of directly converting an electric current into light. An unstoppable technological evolution taking place in recent years has resulted in this revolutionary light source, which, among other things, has made it possible to develop compact fixtures with highly efficient optical systems, thanks to a nearly punctiform and hence more controllable luminous source.

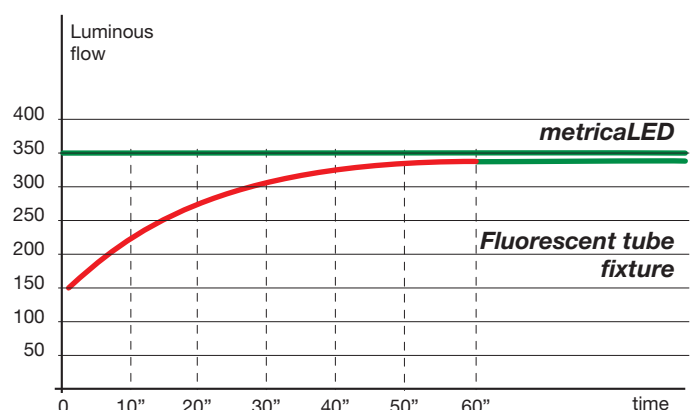
As for all offshoots of technological revolutions, the LED requires very careful management: the power supply circuit must be designed with extreme precision in order to guarantee a long life for these light bulbs of the future.

### ELECTRONIC CIRCUIT WITH SMD TECHNOLOGY INCORPORATED INTO THE LUMINAIRE HOUSING

The sophisticated electronic circuit conceived for MetricaLED has been created using miniaturised components based on SMD technology and an innovative system of heat sinks integrated into the circuit so as to occupy minimum space while guaranteeing high performance. The circuit has been designed to achieve the rated durations of 1h and 3h and is available in the maintained (SA) or non-maintained (SE) mode. Each MetricaLED model is manufactured with its own dedicated electronic circuit.

### INSTANT ACTIVATION FOR MAXIMUM SAFETY

Thanks to the use of power LEDs an additional goal has been reached in the field of safety. The promptness with which an emergency lighting system steps in may often be decisive to prevent accidents caused by dim light during the time it takes for the emergency system to switch on. During a blackout the first seconds are often the most critical: the LED system of MetricaLED Beghelli can guarantee instant delivery of the rated lighting capacity of the luminaire, unlike fluorescent lamps, which reach their full rated capacity about a minute after being switched on.



### RECESS-MOUNTED MODEL, CLEAN STYLING FOR THE LIGHT OF THE FUTURE

The clean design of MetricaLED lends immediate emphasis to the high-tech character of the faceted louver with controlled redirection, whose particular geometric shape serves to enhance the source of light, which is reflected numerous times on the flat surfaces of the reflector. The accessory for recess mounting minimises the space occupied by the fixture, thus bringing the complex faceting of the optical element into the foreground.



### UNIFORM LIGHTING FOR EMERGENCY SIGNS

The reflector in the 8-18-24 W version of MetricaLED has been designed to satisfy both emergency lighting and safety sign requirements with the same guarantees in terms of performance. The metallised louver, besides reflecting a beam to the floor or ground which permits optimal use in escape routes and open (anti-panic) areas, has been conceived to illuminate with an optimal back-light the pictograms supplied with the SA version.



### QUICK-MOUNT SYSTEM WITH FLIP-OPEN FRONT

The latest generation of Beghelli luminaires are designed to make installation and maintenance operations as fast and simple as possible. The special wall mount is configured for various fastening solutions:



503 box, spider case, Wand Einbandose.

Immediate access to the fastening part is made easy thanks to the flip-open front, which incorporates both the optical and electronic components of MetricaLED.

### IP65 VERSION FOR INDUSTRIAL APPLICATIONS

A version with IP65 protection has been developed for installation in industrial environments. It features a system of highly resistant EPDM gaskets applied directly on the luminaire housing.

### BEGHELLI AUTOTEST EMERGENCY LIGHTING TEST SYSTEM COMPLIANT WITH STANDARD UNI 11222

All luminaires belonging to the MetricaLED series are equipped with an Autotest processor for running automatic performance tests on luminaires. The self-test system carries out periodic duration and function tests as required by the new standard UNI11222. The multicolour LED on the louver can signal the following conditions, using a colour code: luminaire malfunctioning, battery fault, test inhibition, end of recharging and mains power on.

### ELECTRONICALLY CONTROLLED BATTERY CHARGING TO SAVE ENERGY

Beghelli's focus on environmental concerns, which has already changed the face of industrial lighting thanks to the project "A World of Light at Zero Cost", has placed an accent on the problems of powering emergency lighting systems. Up to today too little attention has been given to the waste of energy caused by the constant recharging of emergency luminaire batteries that guarantee backup power in the event of a blackout. The larger the battery capacity, the more energy is consumed.

The revolutionary energy-saving recharging system developed for MetricalLED constantly monitors the battery charge to minimise current draw once the charging cycle has been completed.

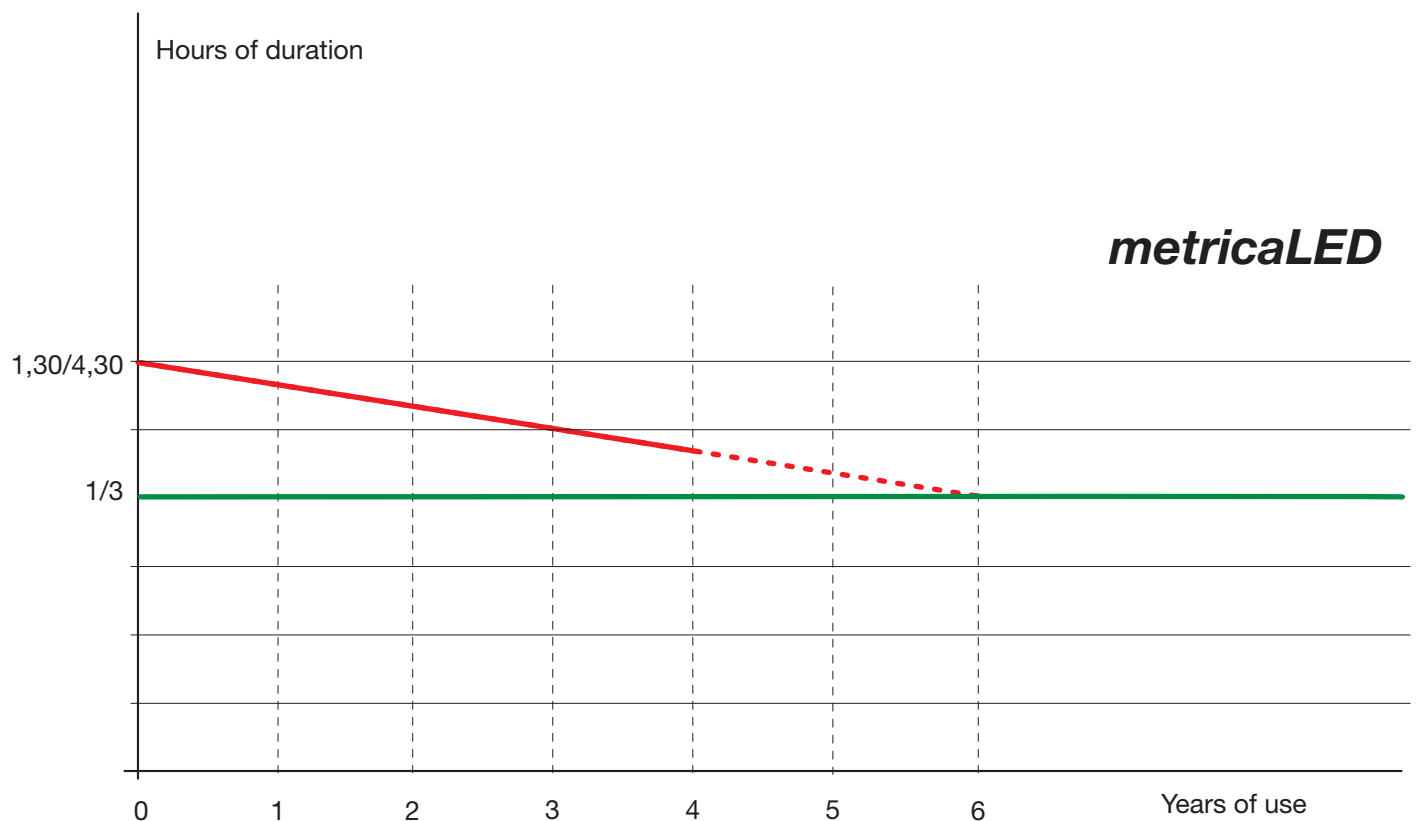
### DURATION ASSURED THROUGHOUT THE BATTERY LIFE

The batteries used to power MetricalLED are sized so as to guarantee the rated duration of the luminaire throughout the life of the battery (4 years, as per standard EN 60 598- 2-22). During the first months of operation, the actual duration far exceeds the rated level: in the first year of life the luminaire will exceed the rated duration by over 30%.

### AN ECOLOGICAL CHOICE

A correct flow of useful light mainly depends on the optical element used. The choice of using batteries that are suitably sized for the actual light emission requirements of luminaires is in line with the WEEE Directive, which, in art. 4, encourages "the design and production of electrical and electronic equipment which take into account and facilitate dismantling and recovery [...] their components and materials."

Through its own design choices Beghelli intends to pursue a policy aimed both at cutting energy consumption and reducing the materials used, thereby also reducing end-of-life disposal requirements. The use of oversized batteries, when applied to fixtures with an inefficient optical system, contributes to wasting energy, given the energy necessary to maintain the charge of an oversized battery that has been installed in order to emit a greater quantity of Lumen to make up for the dispersion of light caused by inevitable uncontrolled reflections of the luminous flow.



## A MAINTENANCE FREE FIXTURE

The LEDs employed for MetricaLED are built using a special technique enabling them to deliver the highest luminous flow available on the market. For this reason, the average lifespan of the LEDs is estimated as over 100,000 hours, which means over 20 years of continuous nighttime operation.

To extend the characteristics of durability offered by the LED to the fixture as a whole, the luminaire housing has also been upgraded to match the longevity of the light source.

## INTEGRAL REFLECTOR AND SHIELD FOR A LONGER LIFE OF THE OPTICAL ASSEMBLY

When the power circuit is correctly designed and protects the light source from voltage fluctuations, the main enemy which threatens to shorten a luminaire's life is dust. To prevent the entry of dust into the lamp compartment, which over time could impair optical performance, Beghelli has developed a highly transparent protective shield, ultrasonically welded to the reflector, in order to obtain an optical assembly that is totally dustproof as well as being protected against handling during installation.

## metrica LED SE (non-maintained):

**one luminaire can save you 40 € in operating costs every 5 years of service**

Comparative test on individual luminaires	MetricaLED	TRADITIONAL FLUORESCENT
Mains power absorbed in standby mode	1,5 W	4,5 W
Yearly energy consumption kW	1,5 x 24h x 365days = 13,14 Kw	4,5 x 24h x 365days = 39,4 Kw
Total energy consumption kW	13,14 x 5 years = 65,7 Kw	39,4 x 5 years = 197 Kw
Light source replacement (mat.+labour)	no maintenance required	10 €
Battery replacement (mat.+labour)	no maintenance required	10 €
decline in photometric performance	absent	10÷30 %
Operating cost (values given as examples)	<b>total 10,18 €</b>	<b>total 50,50 €</b>

## metrica LED SA (maintained):

**one luminaire can save you 108 € in operating costs every 5 years of service**

Comparative test on individual luminaires	MetricaLED	TRADITIONAL FLUORESCENT
Mains power absorbed in standby mode	5 W	15 W
Yearly energy consumption kW	5 x 24h x 365days = 43,8 Kw	15 x 24h x 365days = 131,4 Kw
Total energy consumption kW	43,8 x 5 years = 219 Kw	131,4 x 5 years = 657,5 Kw
Light source replacement (mat.+labour)	o maintenance required	30 €
Battery replacement (mat.+labour)	no maintenance required	10 €
decline in photometric performance	absent	10÷30 %
Operating cost (values given as examples)	<b>total 33,94 €</b>	<b>total 141,9 €</b>

### CALCULATION PARAMETERS USED:

Cost of maintenance work: minimum assumed (only for fluorescent tube fixtures)

Factors tied to decline in performance (only for fluorescent tube fixtures):

loss of tube efficiency, dust in lamp compartment, degeneration of reflecting walls

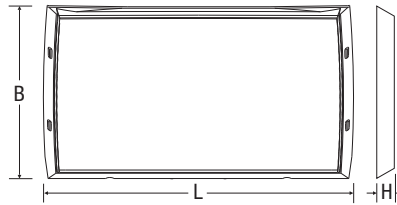
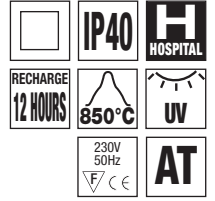
Hours of daily operation: 24, Days of operation: 365, Energy cost: 0.155 € /kWh

**All the values shown in the tables are to be considered examples**

# MetricaLED Beghelli IP40



Luminaire delivering high luminous efficiency. Power LED light source with a lifespan of 100,000 hours. Polycarbonate housing, highly transparent shield. Wide-beam metallised polycarbonate louver with a complex faceted geometry and sequential planes of reflection. High-efficiency electronic circuit in SE, SA versions with 1h or 3h of duration.



Power* W	• Dimensions (mm) •			LED lamp
	L	B	H	
6*	213	157	50	1x58 lm
8*	355	179	57	2x30 lm
11*	213	157	50	1x82 lm
18*	355	179	57	2x58 lm
24*	355	179	57	2x71 lm

\* Approximate power indicated for purposes of comparison with fluorescent tube fixtures

## ACCESSORIES - to be ordered separately

Ord. Cod.	Descriptive	Description	Pkg.
12942	-	RECESS MOUNTING KIT METRICA 6/11W	1
12943	-	RECESS MOUNTING KIT METRICA 8/18/24W	1

## ACCESSORIES - supplied only with maintained (SA) version

Ord. Cod.	Descriptive	Description	Pkg.
12941	-	ADES LEFT RIFGT DOWN METRICA 8/18/24W	1

Luce Utile Beghelli (Illuminance in Lux).

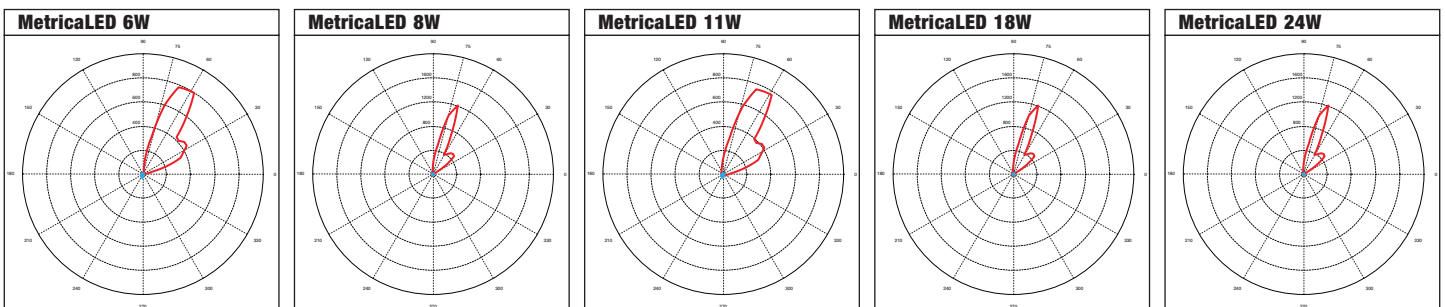


6W	1 LED	duration 1/3 h	2,45 lx
8 W	2 LEDs	duration 1/3 h	3,14 lx
11W	1 LED	duration 1/3 h	3,46 lx
18W	2 LEDs	duration 1/3 h	6,06 lx
24W	2 LEDs	duration 1/3 h	7,42 lx

AT

W	Order Code	Description	LED	Version	Duration	Battery	Lumen rating *	Weight kg	Pkg.
6	12900	METRICA LED IP40 AT 6W SE 1N	1	SE	1h	NiCd HT 4.8V 0.75AH PACK	58 lm	0,6	1
H 6	12901	METRICA LED IP40 AT 6W SE 3N	1	SE	3h	NiCd HT 4.8V 1.7AH SC TYPE AA	58 lm	0,7	1
8	12904	METRICA LED IP40 AT 8W SE 1N	2	SE	1h	NiCd HT 6V 0.75AH AA PACK	60 lm	0,8	1
H 8	12905	METRICA LED IP40 AT 8W SE 3N	2	SE	3h	NiCd HT 7.2V 1.7AH SC TYPE AA	60 lm	0,9	1
8	12908	METRICA LED IP40 AT 8W SA 1N	2	SA	1h	NiCd HT 6V 0.75AH AA PACK	60 lm	0,8	1
H 8	12909	METRICA LED IP40 AT 8W SA 3N	2	SA	3h	NiCd HT 7.2V 1.7AH SC TYPE AA	60 lm	0,9	1
11	12912	METRICA LED IP40 AT 11W SE 1N	1	SE	1h	NiCd HT 4.8V 0.75AH PACK	82 lm	0,6	1
H 11	12913	METRICA LED IP40 AT 11W SE 3N	1	SE	3h	NiCd HT 4.8V 1.7AH SC TYPE AA	82 lm	0,7	1
18	12920	METRICA LED IP40 AT 18W SE 1N	2	SE	1h	NiCd HT 6V 0.75AH AA PACK	116 lm	0,8	1
H 18	12921	METRICA LED IP40 AT 18W SE 3N	2	SE	3h	NiCd HT 7.2V 1.7AH SC TYPE AA	116 lm	0,9	1
18	12924	METRICA LED IP40 AT 18W SA 1N	2	SA	1h	NiCd HT 6V 0.75AH AA PACK	116 lm	0,8	1
H 18	12925	METRICA LED IP40 AT 18W SA 3N	2	SA	3h	NiCd HT 7.2V 1.7AH SC TYPE AA	116 lm	0,9	1
24	12928	METRICA LED IP40 AT 24W SE 1N	2	SE	1h	NiCd HT 4.8V 1.7AH SC TYPE AA	142 lm	0,8	1
H 24	12929	METRICA LED IP40 AT 24W SE 3N	2	SE	3h	NiCd HT 7.2V 1.7AH SC TYPE AA	142 lm	0,9	1
24	12932	METRICA LED IP40 AT 24W SA 1N	2	SA	1h	NiCd HT 4.8V 1.7AH SC TYPE AA	142 lm	0,8	1
H 24	12933	METRICA LED IP40 AT 24W SA 3N	2	SA	3h	NiCd HT 7.2V 1.7AH SC TYPE AA	142 lm	0,9	1

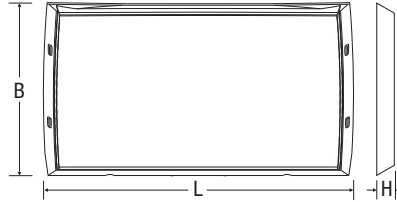
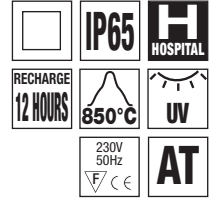
\* In the case of LED lamps, the luminous flow remains constant throughout the duration of emergency operation: therefore, the lumen rating can be considered to correspond to the average flow.



# MetricaLED Beghelli IP65



Luminaire delivering high luminous efficiency. Power LED light source with a lifespan of 100,000 hours. Monolithic optical assembly to seal out dust. Polycarbonate housing, highly transparent shield. Wide-beam metallized polycarbonate louver with complex faceting and sequential planes of reflection. Sealing gasket made of expanded EPDM, resistant to aging and atmospheric agents. High-efficiency electronic circuit in SE, SA versions with 1h or 3h of duration.



Power* W	• Dimensions (mm) •			LED lamp
	L	B	H	
6*	213	157	50	1x58 lm
8*	355	179	57	2x30 lm
11*	213	157	50	1x82 lm
18*	355	179	57	2x58 lm
24*	355	179	57	2x71 lm

\* Approximate power indicated for purposes of comparison with fluorescent tube fixtures

ACCESSORIES - to be ordered separately			
Ord. Cod.	Descriptive	Description	Pkg.
12942	-	RECESS MOUNTING KIT METRICA 6/11W	1
12943	-	RECESS MOUNTING KIT METRICA 8/18/24W	1

ACCESSORIES - supplied			
Ord. Cod.	Descriptive	Description	Pkg.
3727	4003/RG	tube clamp PG16/PG20	1
12941 *	-	ADES LEFT RIFGT DOWN METRICA 8/18/24W	1

\* Pictograms are supplied for 8/18/24W SA (maintained) versions only

Luce Utile Beghelli (Illuminance in Lux).

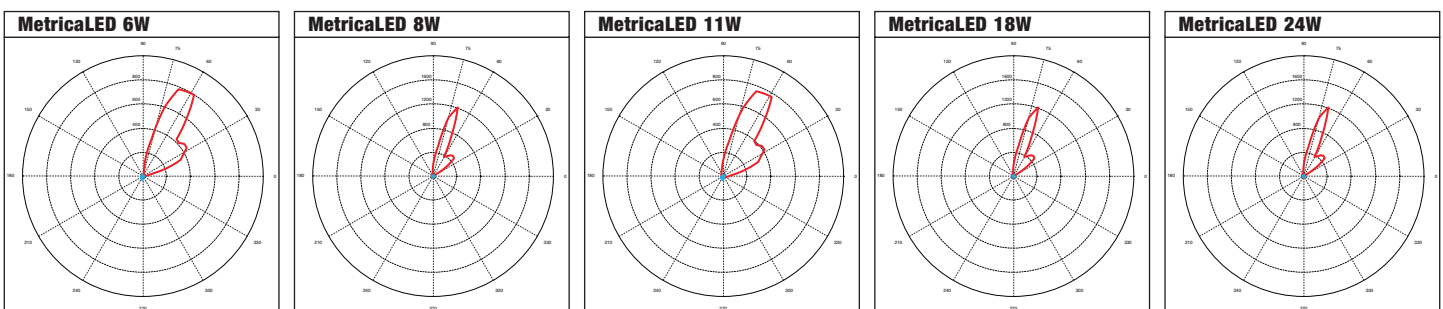
<b>6W</b>	1 LED	duration 1/3 h	2,45 lx
<b>8 W</b>	2 LEDs	duration 1/3 h	3,14 lx
<b>11W</b>	1 LED	duration 1/3 h	3,46 lx
<b>18W</b>	2 LEDs	duration 1/3 h	6,06 lx
<b>24W</b>	2 LEDs	duration 1/3 h	7,42 lx

AT



	W	Order Code	Description	LED	Version	Duration	Battery	Lumen rating *	Weight kg	Pkg.
	6	12902	METRICA LED IP65 AT 6W SE 1N	1	SE	1h	NiCd HT 4.8V 0.75AH PACK	58 lm	0,6	1
<b>H</b>	6	12903	METRICA LED IP65 AT 6W SE 3N	1	SE	3h	NiCd HT 4.8V 1.7AH SC TYPE AA	58 lm	0,7	1
	8	12906	METRICA LED IP65 AT 8W SE 1N	2	SE	1h	NiCd HT 6V 0.75AH AA PACK	60 lm	0,8	1
<b>H</b>	8	12907	METRICA LED IP65 AT 8W SE 3N	2	SE	3h	NiCd HT 7.2V 1.7AH SC TYPE AA	60 lm	0,9	1
	8	12910	METRICA LED IP65 AT 8W SA 1N	2	SA	1h	NiCd HT 6V 0.75AH AA PACK	60 lm	0,8	1
<b>H</b>	8	12911	METRICA LED IP65 AT 8W SA 3N	2	SA	3h	NiCd HT 7.2V 1.7AH SC TYPE AA	60 lm	0,9	1
	11	12914	METRICA LED IP65 AT 11W SE 1N	1	SE	1h	NiCd HT 4.8V 0.75AH PACK	82 lm	0,6	1
<b>H</b>	11	12915	METRICA LED IP65 AT 11W SE 3N	1	SE	3h	NiCd HT 4.8V 1.7AH SC TYPE AA	82 lm	0,7	1
	18	12922	METRICA LED IP65 AT 18W SE 1N	2	SE	1h	NiCd HT 6V 0.75AH AA PACK	116 lm	0,8	1
<b>H</b>	18	12923	METRICA LED IP65 AT 18W SE 3N	2	SE	3h	NiCd HT 7.2V 1.7AH SC TYPE AA	116 lm	0,9	1
	18	12926	METRICA LED IP65 AT 18W SA 1N	2	SA	1h	NiCd HT 6V 0.75AH AA PACK	116 lm	0,8	1
<b>H</b>	18	12927	METRICA LED IP65 AT 18W SA 3N	2	SA	3h	NiCd HT 7.2V 1.7AH SC TYPE AA	116 lm	0,9	1
	24	12930	METRICA LED IP65 AT 24W SE 1N	2	SE	1h	NiCd HT 4.8V 1.7AH SC TYPE AA	142 lm	0,8	1
<b>H</b>	24	12931	METRICA LED IP65 AT 24W SE 3N	2	SE	3h	NiCd HT 7.2V 1.7AH SC TYPE AA	142 lm	0,9	1
	24	12934	METRICA LED IP65 AT 24W SA 1N	2	SA	1h	NiCd HT 4.8V 1.7AH SC TYPE AA	142 lm	0,8	1
<b>H</b>	24	12935	METRICA LED IP65 AT 24W SA 3N	2	SA	3h	NiCd HT 7.2V 1.7AH SC TYPE AA	142 lm	0,9	1

\* In the case of LED lamps, the luminous flow remains constant throughout the duration of emergency operation: therefore, the lumen rating can be considered to correspond to the average flow.



# metrica

## LED

Professional emergency luminaire



GRUPPO BEGHELLI



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