
DELIGHT
heper

Philosophy
Founded in 1994 “lighting” has become a way of life for Heper.

Leading Designs
Our engineering group uses the latest design and modeling software to ensure the outstanding optical performance as well as the best overall durability of our luminaires.

Test of Quality
Our success relies on the quality of our product development process. All products are individually tested which are necessary for successful usage.

Special Solutions
Heper offers complete design and production services beginning with your idea to the completed product.

Product Sales
With a product range sold throughout over 30 countries worldwide, Heper is the supplier for all professional outdoor lighting needs.

Project Design & Installation
Heper designs new lighting systems, as well as renovating existing systems, to give them renewed life and flexibility. We examine the end-user's objectives and intended use of the venue, help establish the lighting system parameters and lighting requirements, and provide detailed information.

Product
Our products contribute to a more pleasant way of life for people wherever and whenever they come together.

MILESTONE®

LED MODULE

long life span

innovative

sustainable

high efficient

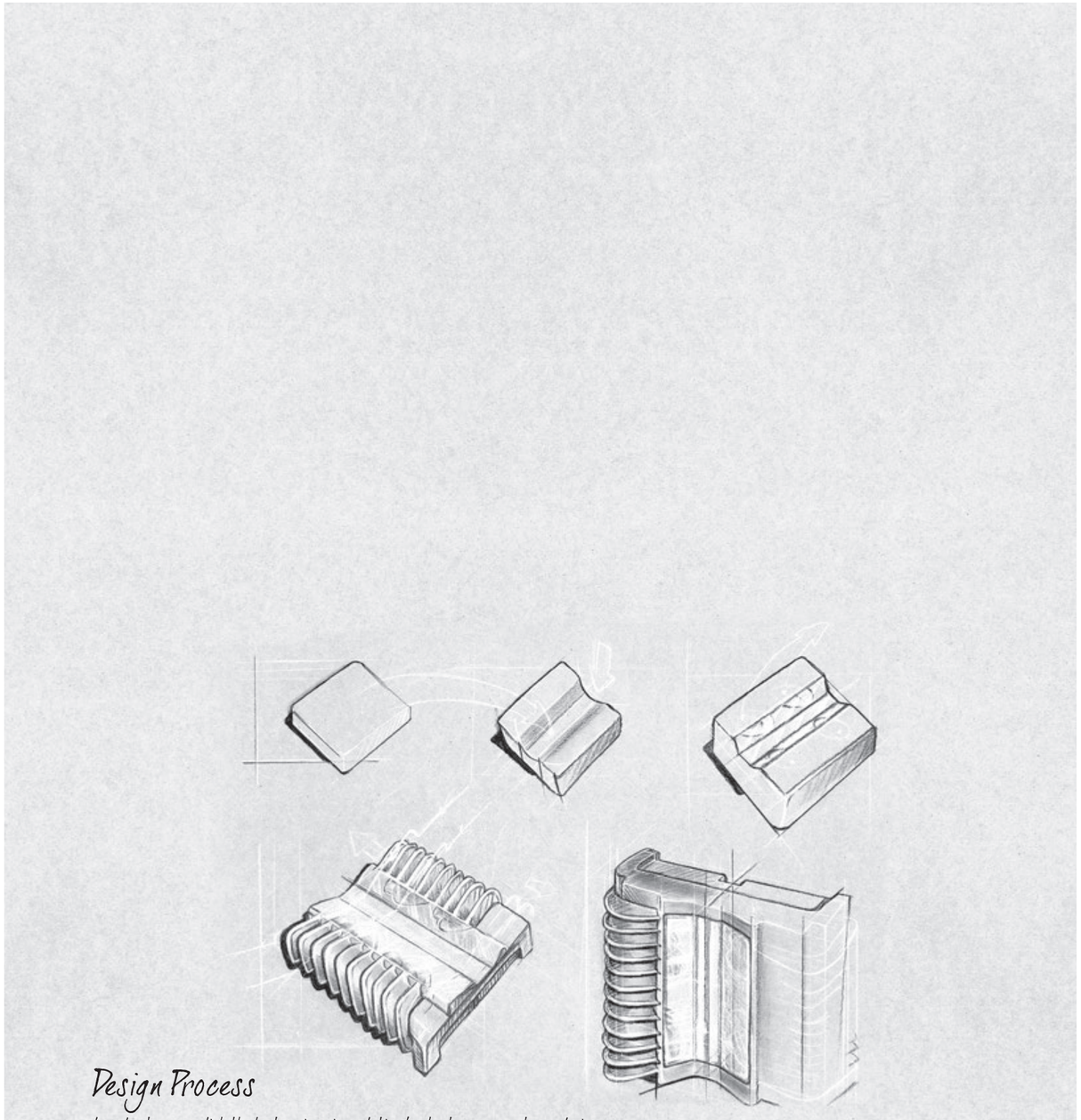
new generation

energy saving

excellent heat management

Optical Technology

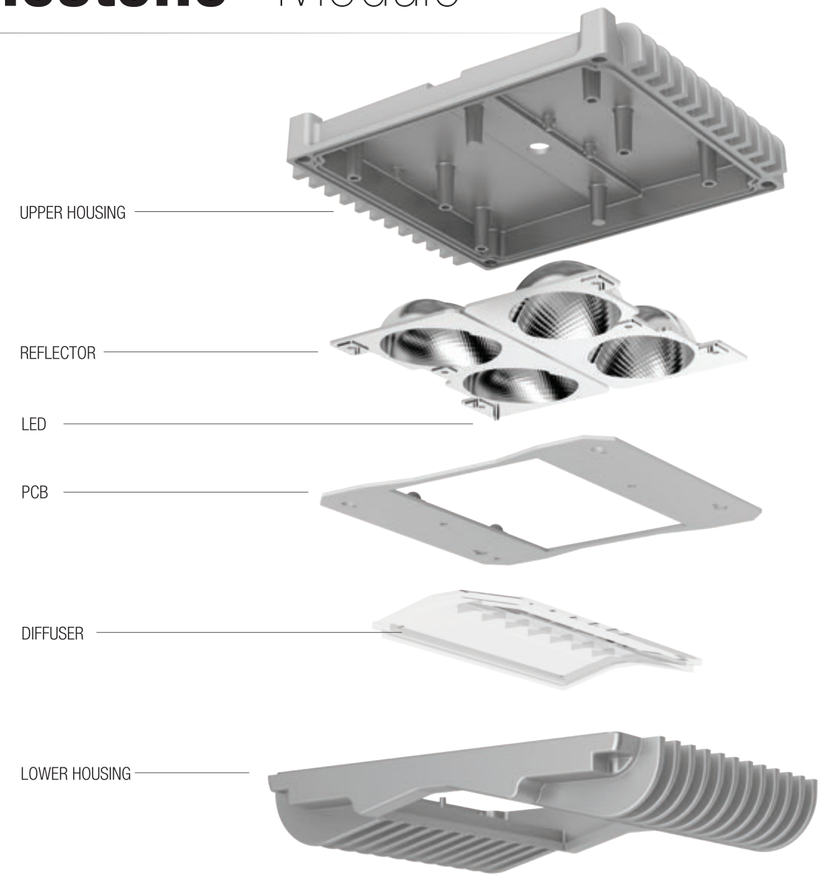
The optic system which is designed for assymmetric light distribution is suitable for illuminating streets in accordance with DIN EN 13201. The system has excellent glare reduction and homogeneity. **MILESTONE®** LED Module is completely created for getting high efficiency by using the system components in reliable materials. All these materials (LED packages, modules and arrays) are tested according to LM-80 standards which refers to a method for measuring the lumen depreciation of solid-state lighting sources.



Design Process

In order to accomplish the best engineering solution for heat management, our design team has worked on creating a unique form.

Structure of
Milestone® Module

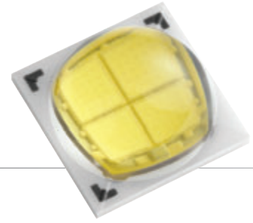


Milestone®
Technical Specifications

MECHANICAL PROPERTIES
Corrosion resistant die-cast aluminum aesthetics housing
Easy installation, easy maintenance
Optimized thermal management system
Ingress protection: IP66
Electrical Insulation: Class I-II
The system complies with European standarts EN 60598 and ENEC certified
Corrosion resistant and superior quality finishes for all weather conditions

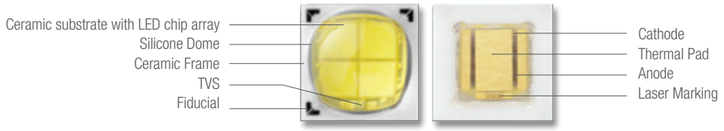
ELECTRICAL PROPERTIES
LED Quantity: 4
Color Temperatur Range: 2700K-6500K
Driver: 35w 700mA (350 / 500mA according to project requirements)
PCB: Optimized PCB-Design with touchdown technology
Lifetime: >50.000h
Dali, 0-10V control and dimming options

OPTICAL PROPERTIES
2/3/4/6/8 ML LED modules for outdoor applications
Total Lumen: 4000 lm @70CRI @700mA / 4000K
Total Watt: 35W
Anti-Glare
Multi-facetted reflector
Special complex-surface reflector technology with reflectance >80%
Smooth and full cut off light distrubition, no light above 90°



Light Emitting Diode (LED)

The emitters which we use in our products are illumination grade LEDs designed to enable outdoor applications. The emitters consists of a 2x2 LED Chip array mounted onto a ceramic substance. This substance ensure mechanical support and thermally connects the LED Chips to a thermal pad on the bottom of the substrate. Each emitter includes a trasient voltage suppressor chip under the silicone dome to protect the emitter against electrostatic discharges.



The advantages of using LED;
Energy Efficiency
Long Life
Ecologically Friendly
Durable Quality
Zero UV Emissions
Design Flexibility
Operational in Extremely Cold or Hot Temperatures
Instant Lighting & Frequent Switching

Optimized PCB-Technology

A PCB serves two purposes in the construction of an electronic device; properly working conditions and it provides the means of electrical connection between the components consistently.
In order to get a high efficiency from PCB, determine the PCB size, ambient temperature range, used to specify the materials selected for the PCB and the schematic drawing must be based on the concept. Otherwise the LED life time would be shorter and it is not work properly. **MILESTONE®** dimension is the best suitable shape and optimal design.
PCB had been the greatest possible sizes and thermal designs were drawing according to optical criteria and produced that aluminum MCPCB (Metal Core PCB). The ideal thermal design will result in the entire board being the same temperature. PCB has highest thermochemistry conductivity aluminum board area which is dielectric current and 70um number of copper layers. Reduce operating temperatures easily through the largest size of board. On the other hand PCB design process has been decreased the production time because of PCB consist of one part.
Optimal point were getting target in the thermal design. Optical, electronic and production factors are considered the reach for reaching best optimal point.
The thickness of the copper used on the PCB that provides the large quantities of LED heat radiates effectively. Each point on the PCB has the same temperature. At the same time heat throws through in manner that board and atmosphere properly for in order to protect LED. Heat dissipation properly and transfer to the board can increase the efficient of LED and decrease the maintenance lifetime.
Thermal conductivities of the LED to be grouped on the PCB and get away from each other's for insulation. In that way, extra stress and strength of the ESD had been increased for unexpectedly situations.

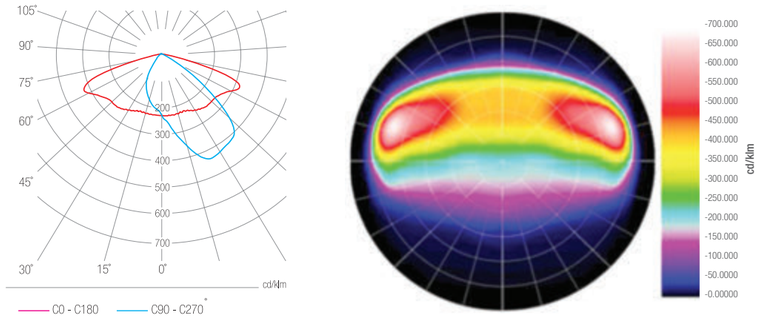
Complex Surface Reflector Technology

MILESTONE® module has a special reflector which is all drawings and designs belong to us by patent rules. Also that module was prepared for using the several types of road classification which are M1, M2, M3 and M4. At that point this design has been optimized for getting best light beam on the street. In order to use DELIGHT for different type of roads, it is enough changing the number of modules is possible to use properly.

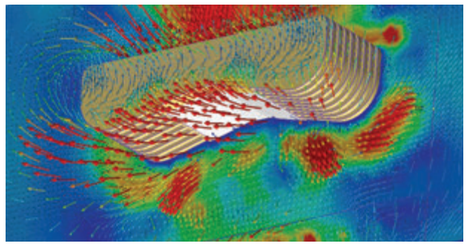
Using reflector on the **MILESTONE®** module has a unique design, durability and high reflectivity. That is the reason module can keep going on the reflectivity very long time.

MILESTONE® module is done with design and analysis, it has been already started the production properly after software tests and simulations.

MILESTONE® reflector module has been designed for lighting required of road classes which are M1, M2, M3 and M4. Additionally this module; optical, thermal and electrically optimized for which is used with the LED.

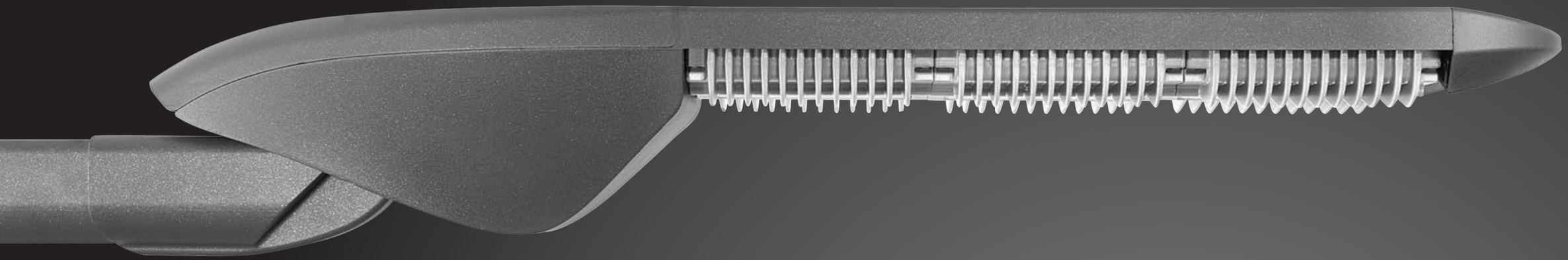


Thermal Optimized Housing



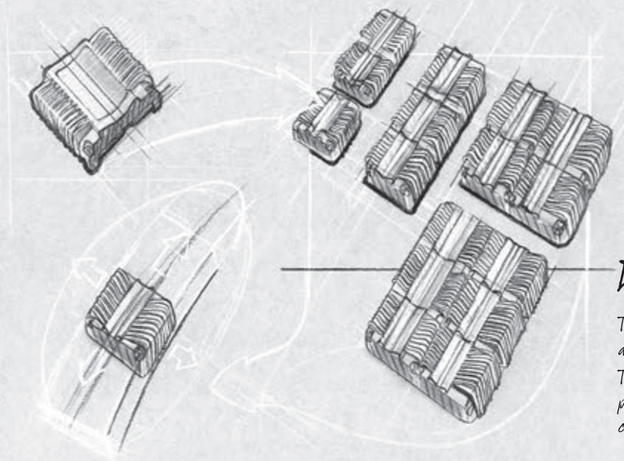
During designing thermal management process, the biggest concern regarding with condition was the high temperatures especially in Middle East region. While our designer working on this project, they had been indicated superior skill for all engineering issue and all heat transfer calculation. Heat transition depends on the either environment temperature differences or surface and ambient features as well. Design and using material has belonged to high significant in the high temperature situations. The study of thermo dynamical management has developed into several related branches, each using a different fundamental model as a theoretical or experimental basis or applying the principles to varying types of systems. In that way some of details should be reconsideration for getting best result on the design process. These ones respectively could be in this way; directly heat transfer with contingence, provide to natural transfer with special cooling canals that has special winglet structure. Under the above explanation, special winglets help to increase all surfaces that transfer the extra heat both easily and quickly. According to efficient test, our designer determined the cooler winglets position toward the road such as upside down. In that way both self-cleaning and ingress protection had been increased effectively.

The most important thing for the using special design on that project which is provides to maximum heat transfer under the unit of time. Moreover the main target is protecting the entirety and durability of the using material under the high temperatures (50°C).



DELIGHT

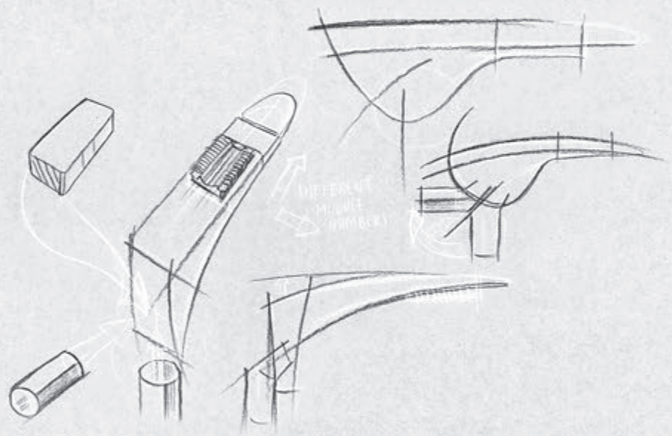
LED Street Lighting



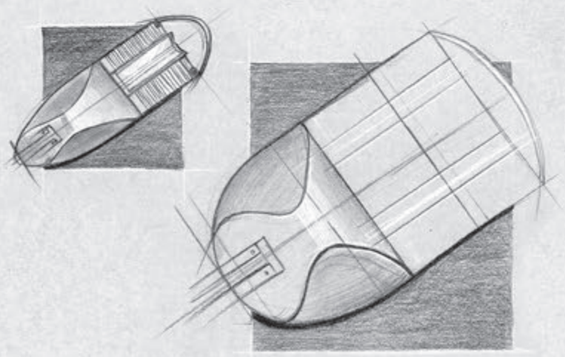
Design Process

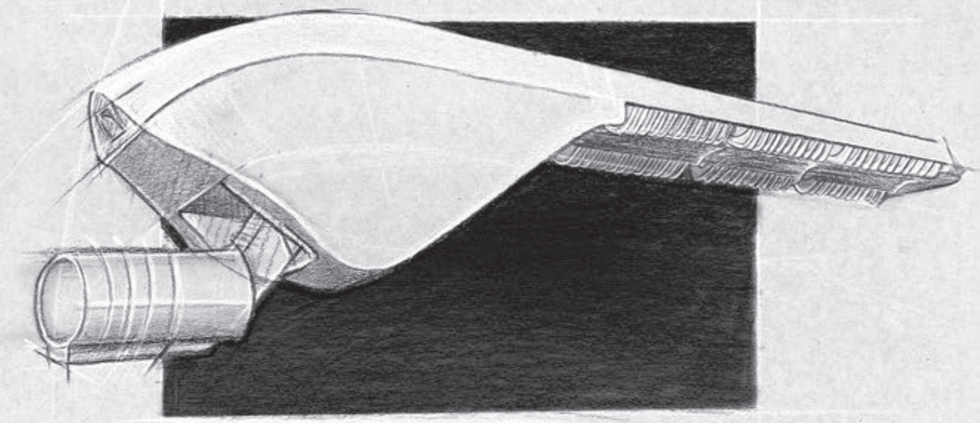
To create a unique design, all the porometers was thought in details by our designers.

They have decided to put modules under the cover which provided us "self-cleaning" feature. Also the design was created for resisting against wind load.

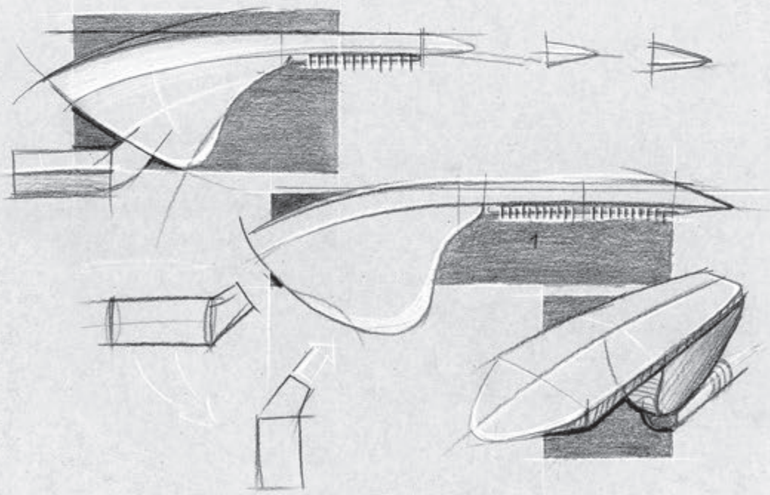


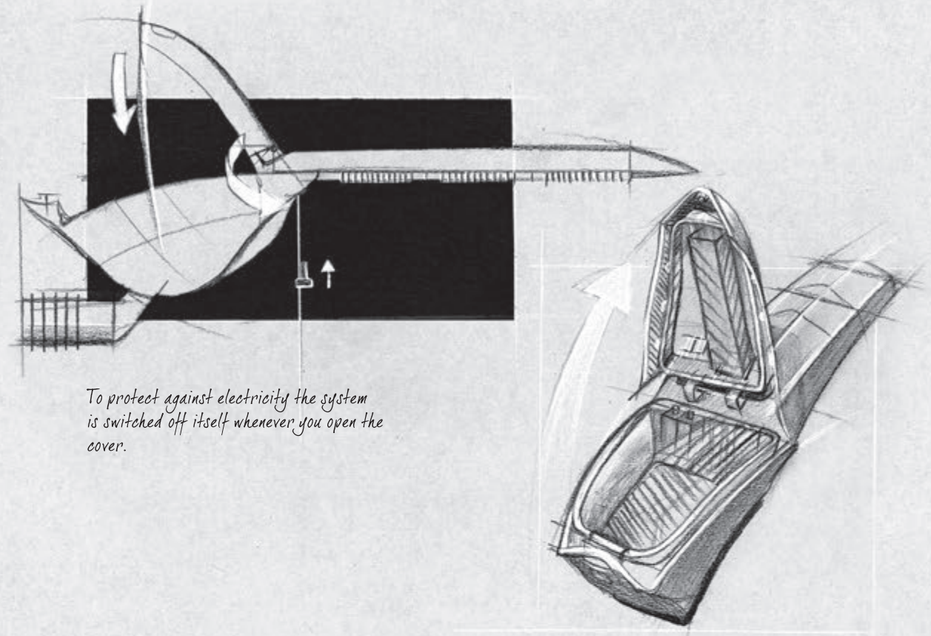
The shell design try-outs for the best modularity function.



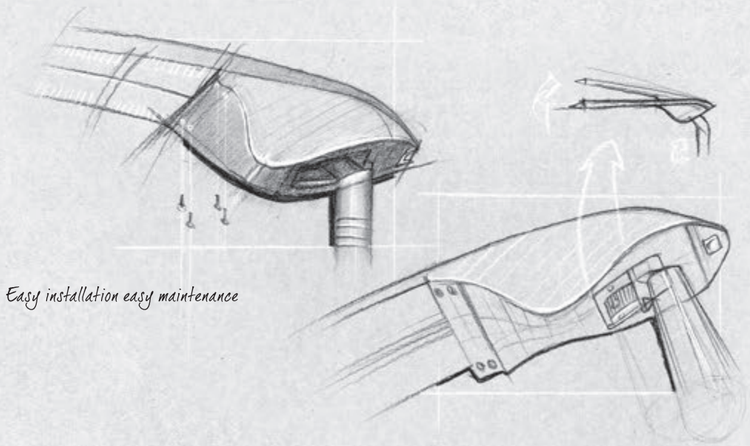


Curve analysis for the changing number of the modules.





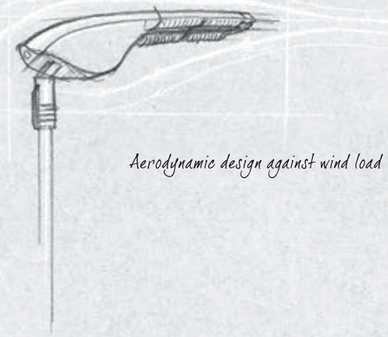
To protect against electricity the system is switched off itself whenever you open the cover.



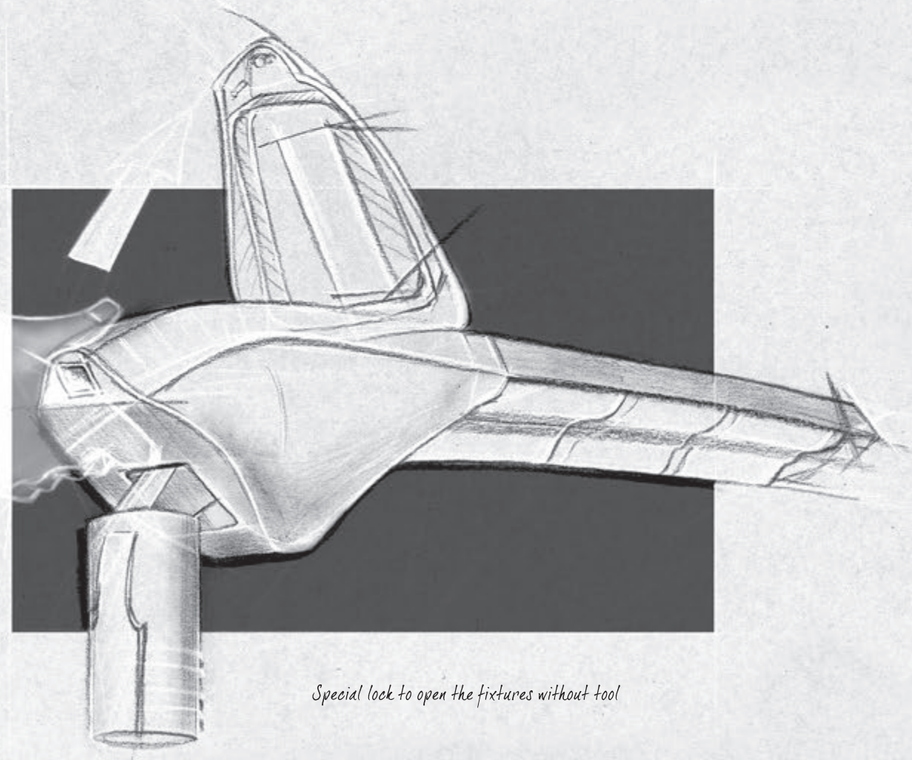
Easy installation easy maintenance

Adjustable bracket tilt between ±15°

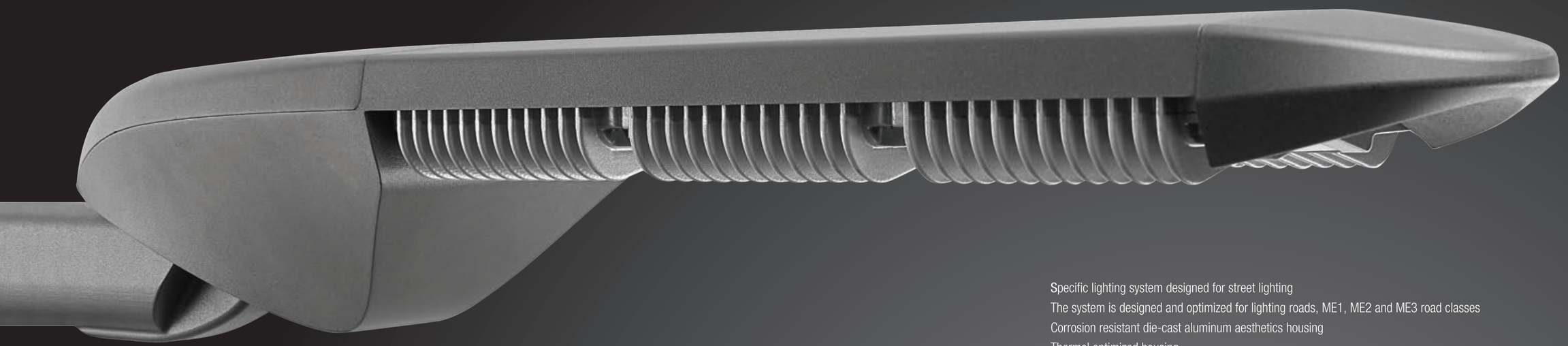
Surge Protection



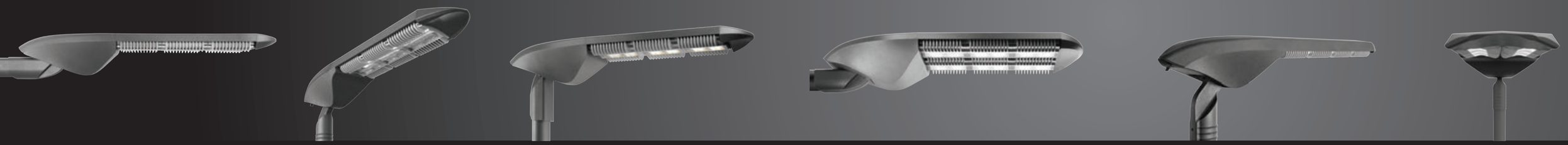
Aerodynamic design against wind load



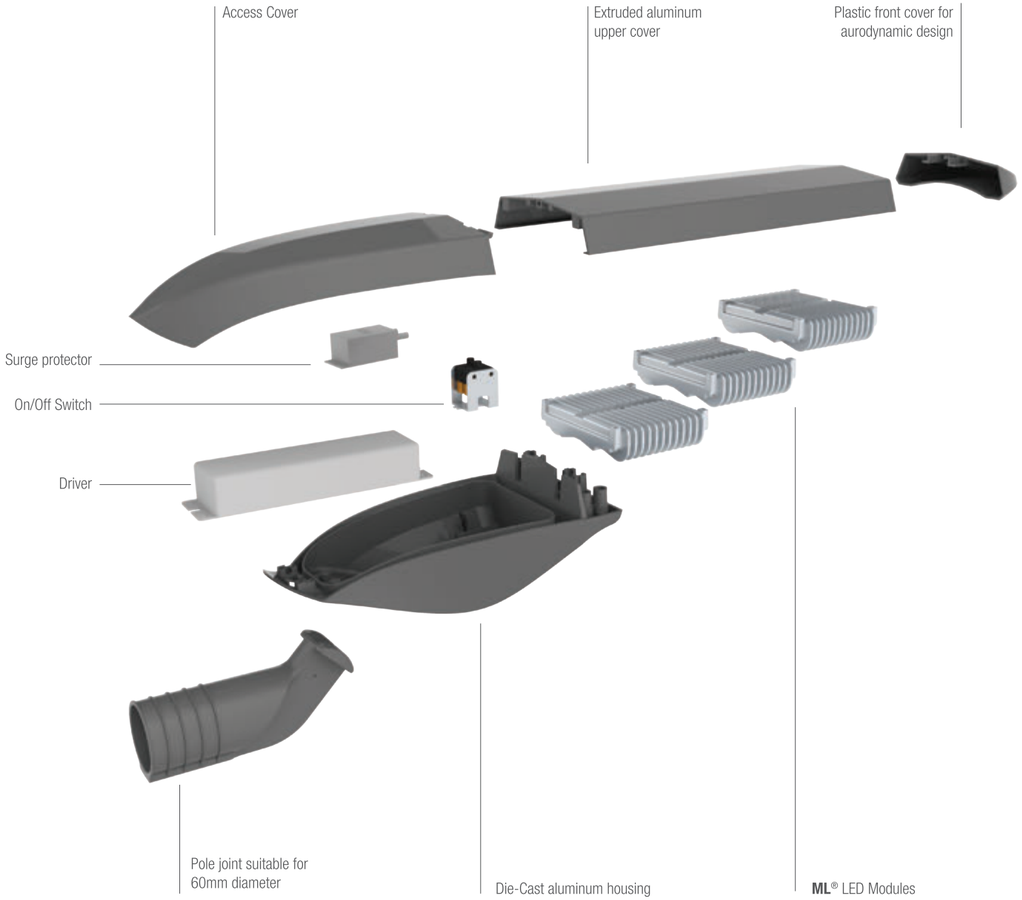
Special lock to open the fixtures without tool

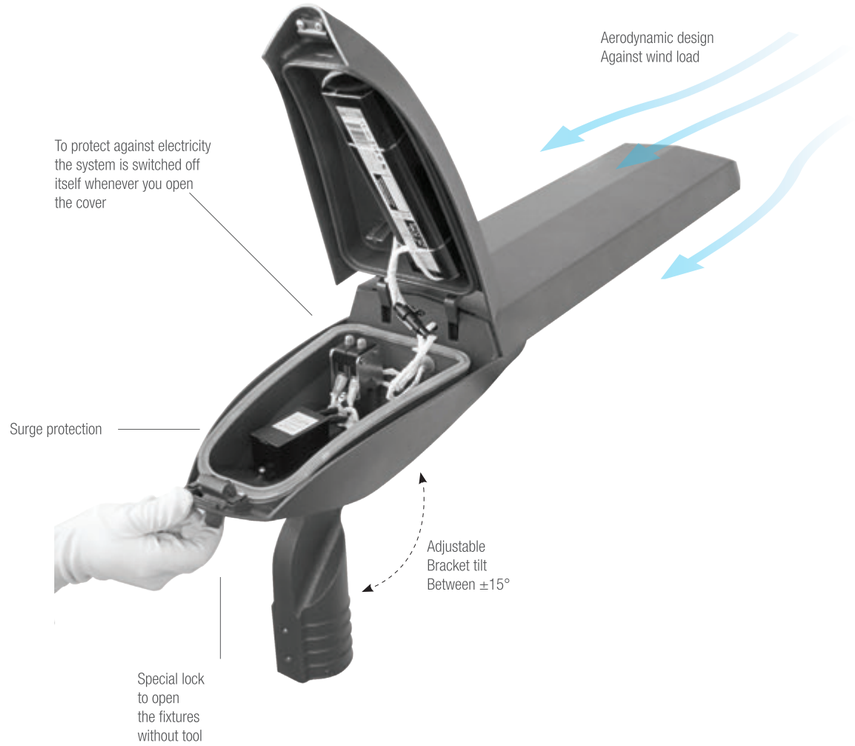


Specific lighting system designed for street lighting
The system is designed and optimized for lighting roads, ME1, ME2 and ME3 road classes
Corrosion resistant die-cast aluminum aesthetics housing
Thermal optimized housing
Easy installation and maintenance
Operating temperature -25 °C - +50 °C
Ingress Protection: IP66
Electrical Insulation: CLASS I - II
Corrosion resistant and superior quality finishes for all weather conditions
Colors: Standard RAL colors
The system complies with European standards EN 60598 and ENEC certificated
Special complex-surface reflector technology with reflectance >80%
Smooth and full cut off light distribution, no light above 90°
Optimized PCB-Design with TouchDown Technology
Advanced surface design for modular connections in luminaire high efficacy >110 lm/W including system consumptions
Module lifetime > 50.0000h
Color-temperature varioations of 3000K / 4000K / 5000K
DALI, 0-10V control and dimming options

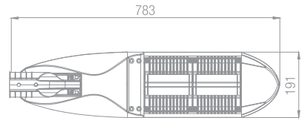


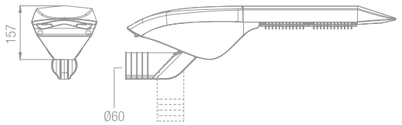
2/3/4/6/8 ML LED Modules, for outdoor applications





easy **installation** easy **maintenance**



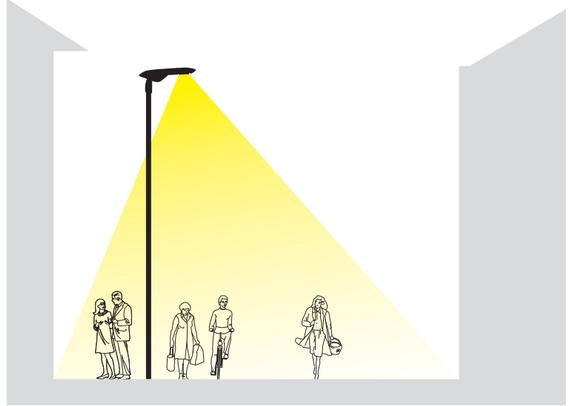


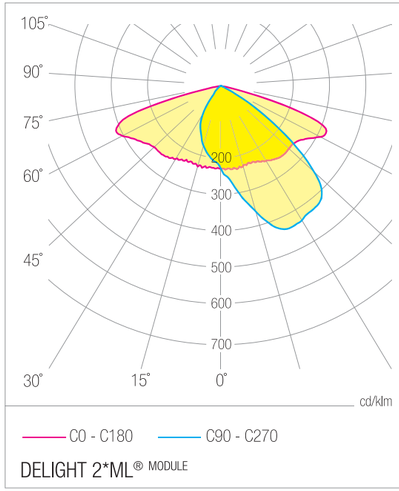
2*ML® MODULE

Luminous Flux of Luminaire	**8000 lm**
Power Consumption of Luminaire	**70 W**
Luminaire Efficacy of Module	**114 lm/W**

Road Class (acc. to EN13201)	S1	S2	S3	S4	S5	S6
Pole Heights	6m					
Pole Distance (Calculated in Dialux)	<25m	<33m	<42m			

ME1	ME2	ME3	ME4	ME5	ME6
		6m			
		<25m	<29m	<34m	



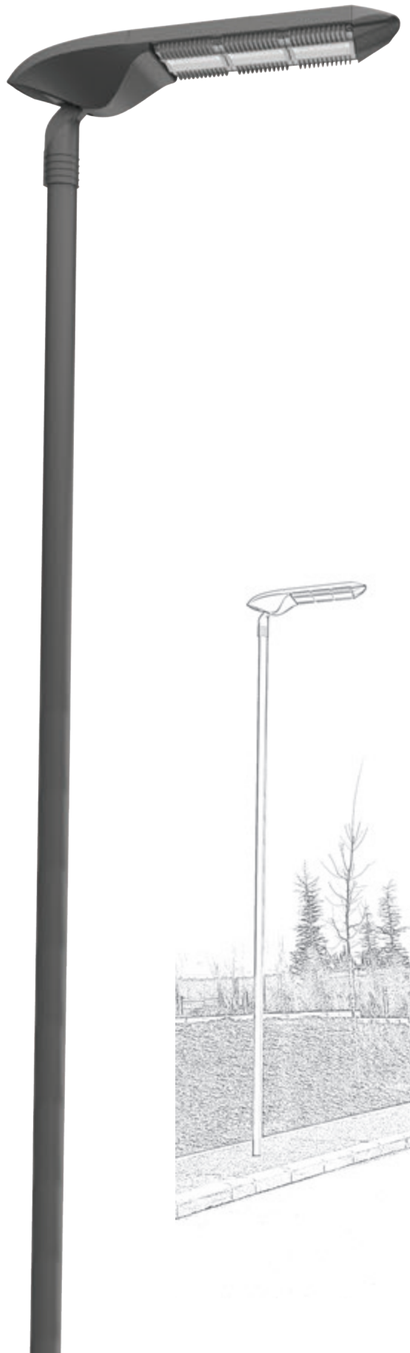


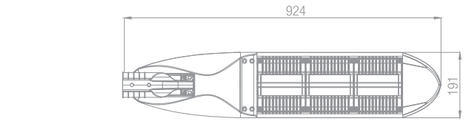
LUMINAIRE

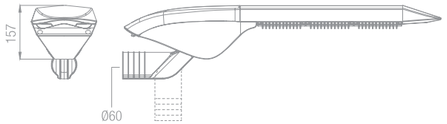
CODE	DESCRIPTION	LIGHT SOURCE	POWER (W)	LUMEN (lm)	COLOR TEMPERATURE (K)
LL2023.672	2 * ML® MODULE		70	8000	4000

POLES

CODE	DESCRIPTION	H1	H2	H3	D1	D2	F	ANCHORAGE	FLANGE COVER	TERMINAL BOX
PAFK.013.060	ALUMINUM CONICAL POLE FLANGED	-	-	6000	Ø122	Ø60	240	90BJ004	C1D2B	51
PABK.013.060	ALUMINUM CONICAL POLE BURIED	1000	-	6000	Ø122	Ø60	-	-	-	51
PAFK.017.080	ALUMINUM CONICAL POLE FLANGED	-	-	8000	Ø148	Ø60	243	90CJ006	C1F2C	51
PABK.017.080	ALUMINUM CONICAL POLE BURIED	1200	-	8000	Ø148	Ø60	-	-	-	51





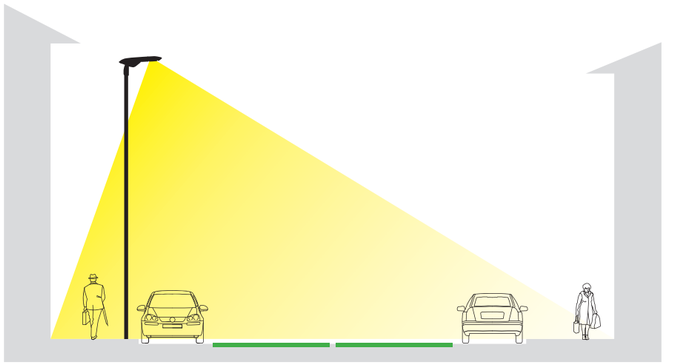


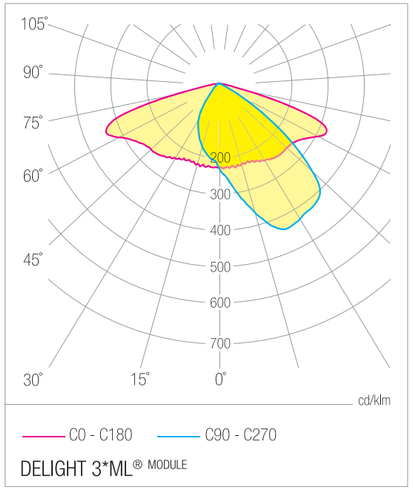
3*ML® MODULE

Luminous Flux of Luminaire	**12000 lm**
Power Consumption of Luminaire	**105 W**
Luminaire Efficacy of Module	**114 lm/W**

Road Class (acc. to EN13201)	S1	S2	S3	S4	S5	S6
Pole Heights	6m					
Pole Distance (Calculated in Dialux)	<25m	<33m	<42m			

ME1	ME2	ME3	ME4	ME5	ME6
	8m				
	<25m	<33m	<37m		



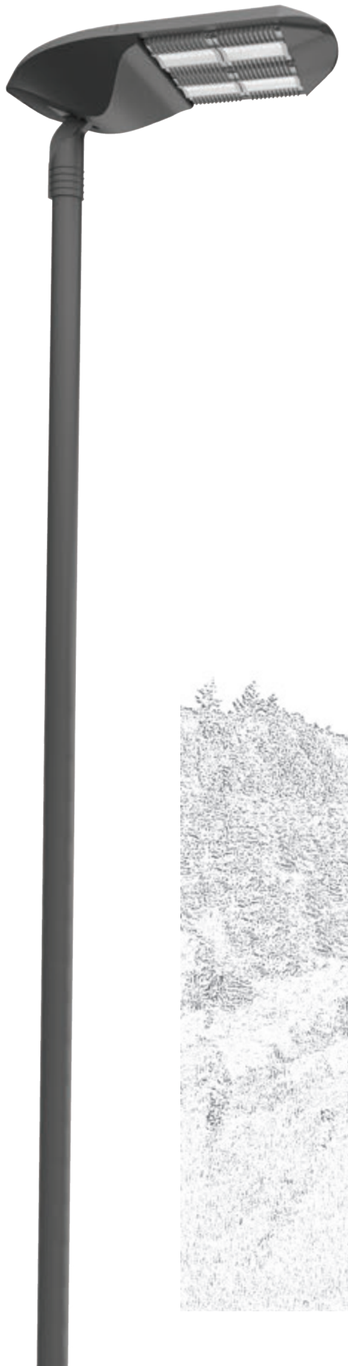


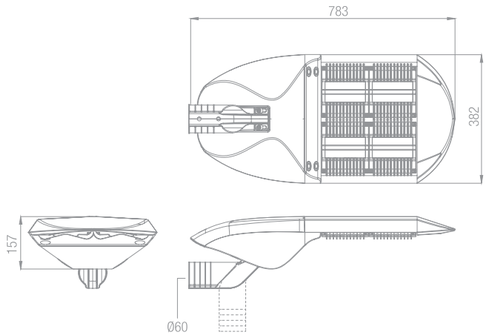
LUMINAIRE

CODE	DESCRIPTION	LIGHT SOURCE	POWER (W)	LUMEN (lm)	COLOR TEMPERATURE (K)
LL2023.673	3 * ML® MODULE		105	12000	4000

POLES

CODE	DESCRIPTION	H1	H2	H3	D1	D2	F	ANCHORAGE	FLANGE COVER	TERMINAL BOX
PAFK.013.060	ALUMINUM CONICAL POLE FLANGED	-	-	6000	Ø122	Ø60	240	90BJ004	C1D2B	51
PABK.013.060	ALUMINUM CONICAL POLE BURIED	1000	-	6000	Ø122	Ø60	-	-	-	51
PAFK.017.080	ALUMINUM CONICAL POLE FLANGED	-	-	8000	Ø148	Ø60	243	90CJ006	C1F2C	51
PABK.017.080	ALUMINUM CONICAL POLE BURIED	1200	-	8000	Ø148	Ø60	-	-	-	51



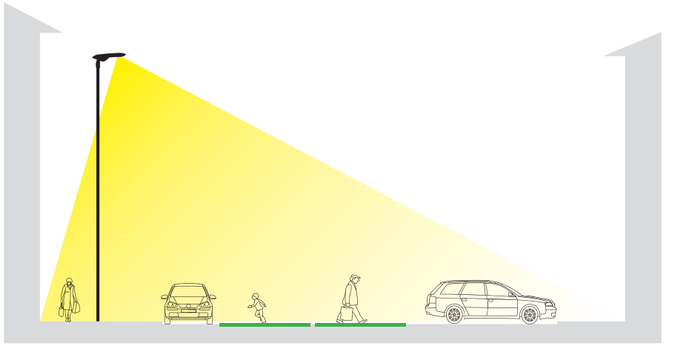


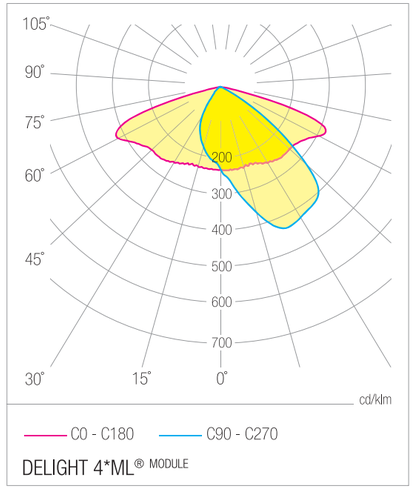
4*ML® MODULE

Luminous Flux of Luminaire	**16000 lm**
Power Consumption of Luminaire	**140 W**
Luminaire Efficacy of Module	**114 lm/W**

Road Class (acc. to EN13201)	S1	S2	S3	S4	S5	S6
Pole Heights						
Pole Distance (Calculated in Dialux)						

ME1	ME2	ME3	ME4	ME5	ME6
8m					
<25m	<32m	<35m	<39m		





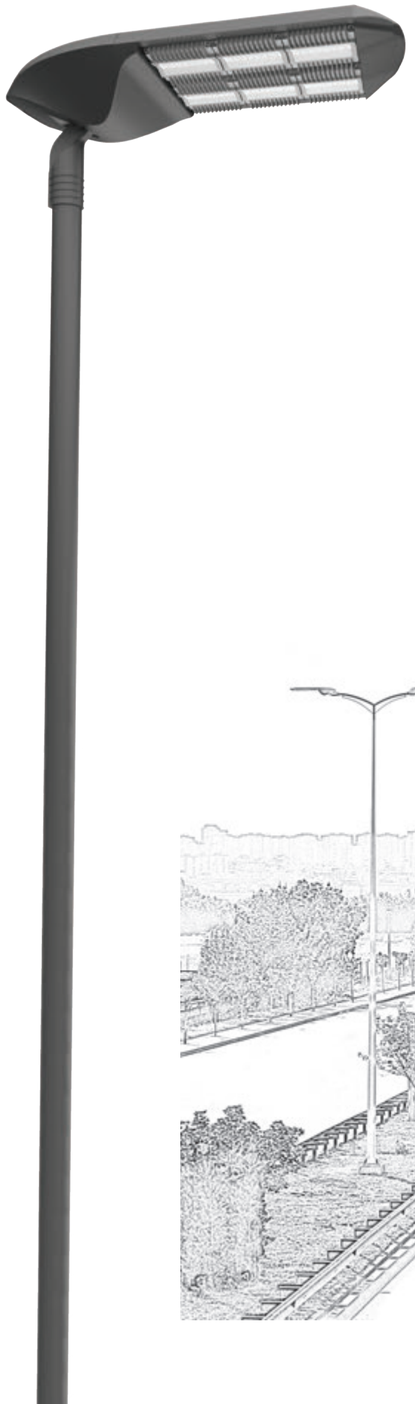
DELIGHT 4*ML® MODULE

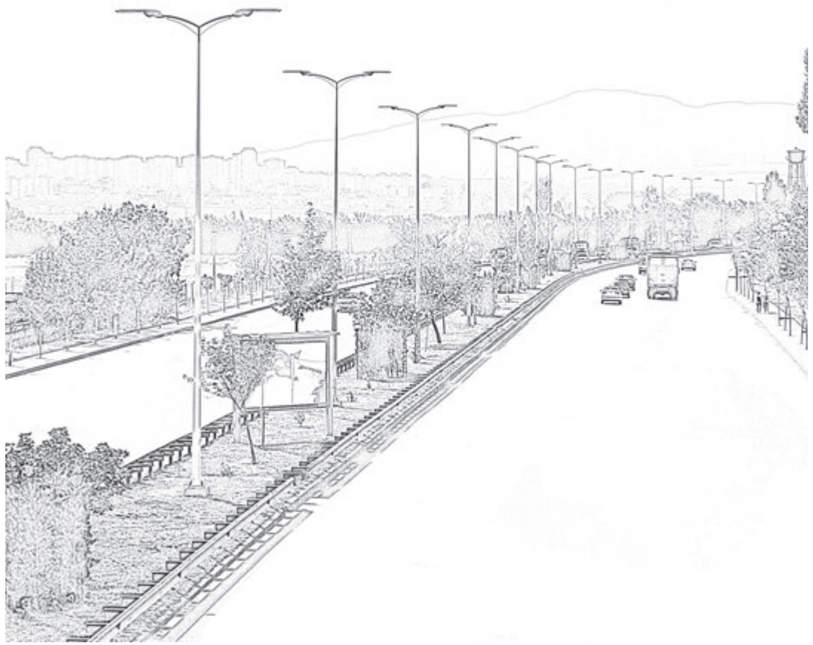
LUMINAIRE

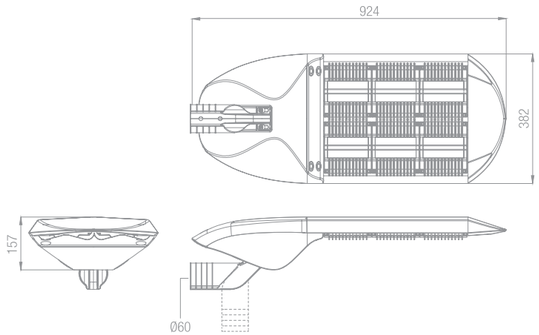
CODE	DESCRIPTION	LIGHT SOURCE	POWER (W)	LUMEN (lm)	COLOR TEMPERATURE (K)
LL2024.674	4 * ML® MODULE		140	16000	4000

POLES

CODE	DESCRIPTION	H1	H2	H3	D1	D2	F	ANCHORAGE	FLANGE COVER	TERMINAL BOX
PAFK.017.080	ALUMINUM CONICAL POLE FLANGED	-	-	8000	Ø148	Ø60	243	90CJ006	C1F2C	51
PABK.017.080	ALUMINUM CONICAL POLE BURIED	1200	-	8000	Ø148	Ø60	-	-	-	51





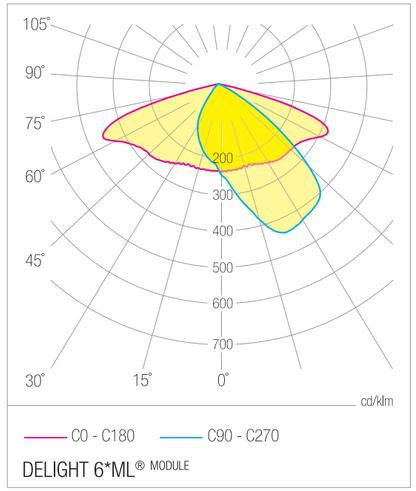


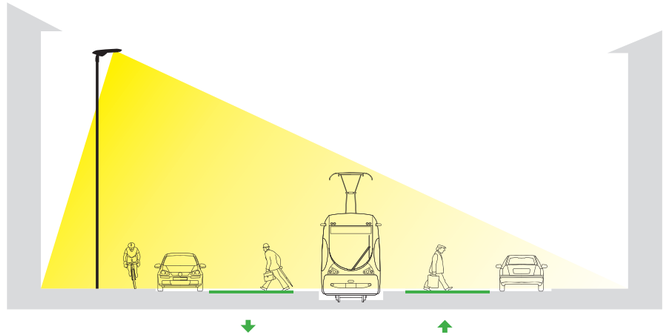
6*ML® MODULE

Luminous Flux of Luminaire	**24000 lm**
Power Consumption of Luminaire	**210 W**
Luminaire Efficacy of Module	**114 lm/W**

Road Class (acc. to EN13201)	S1	S2	S3	S4	S5	S6
Pole Heights						
Pole Distance (Calculated in Dialux)						

ME1	ME2	ME3	ME4	ME5	ME6
12m					
<27m	<36m	<52m			



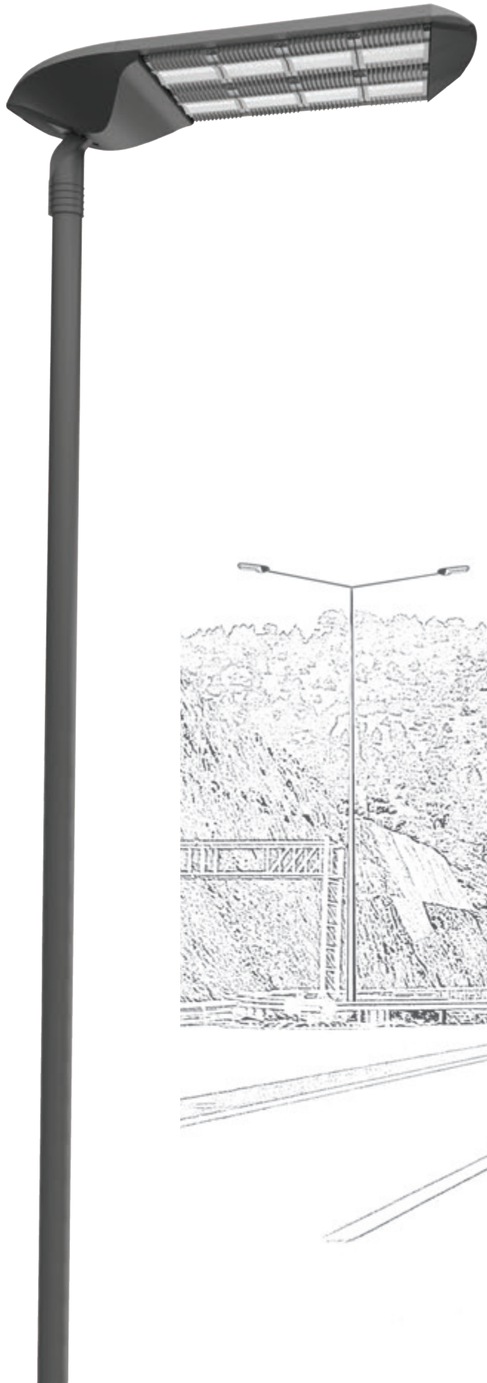


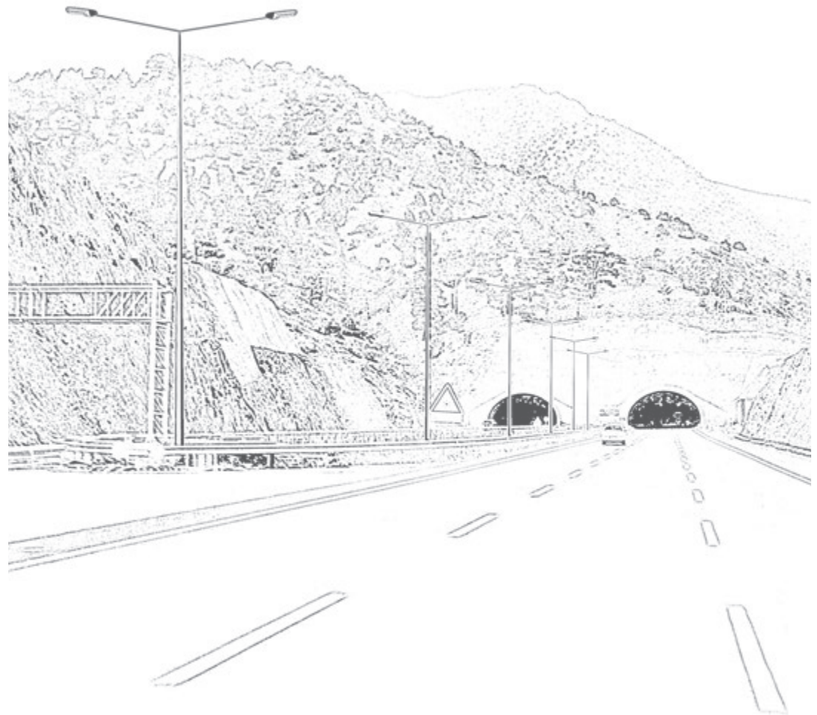
LUMINAIRE

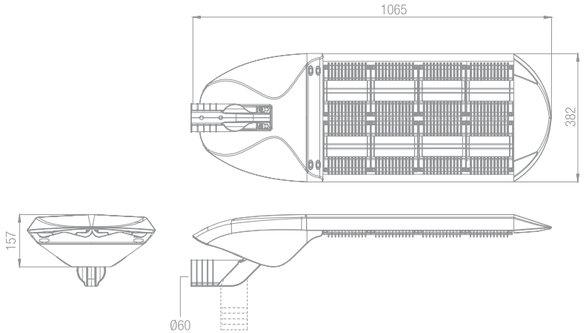
CODE	DESCRIPTION	LIGHT SOURCE	POWER (W)	LUMEN (lm)	COLOR TEMPERATURE (K)
LL2024.675	6 * ML® MODULE		210	24000	4000

POLES

CODE	DESCRIPTION	H1	H2	H3	D1	D2	F	ANCHORAGE	FLANGE COVER	TERMINAL BOX
PAFK.017.080	ALUMINUM CONICAL POLE FLANGED	-	-	8000	Ø148	Ø60	243	90CJ006	C1F2C	51
PABK.017.080	ALUMINUM CONICAL POLE BURIED	1200	-	8000	Ø148	Ø60	-	-	-	51
PAFK.052.100	ALUMINUM CONICAL POLE FLANGED	-	-	10000	Ø165	Ø76	244	90CJ007	C1G2D	51
PABK.052.100	ALUMINUM CONICAL POLE BURIED	1500	-	10000	Ø165	Ø76	-	-	-	51





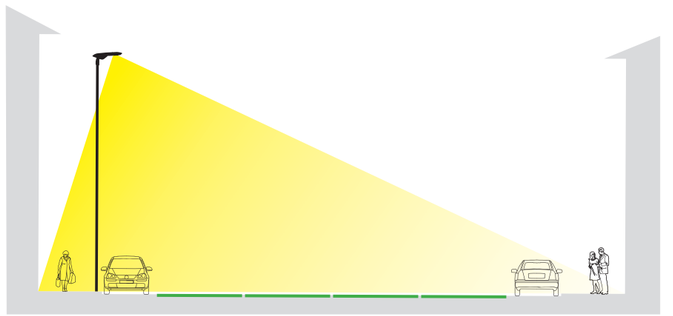


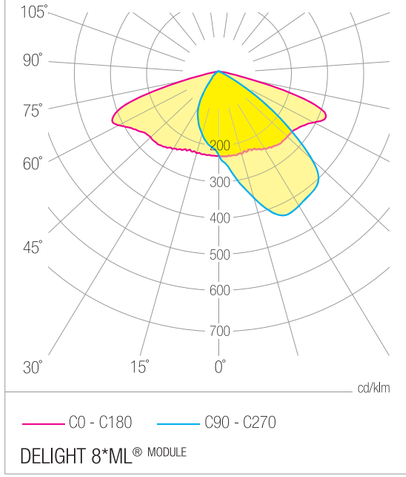
8*ML® MODULE

Luminous Flux of Luminaire	**32000 lm**
Power Consumption of Luminaire	**280 W**
Luminaire Efficacy of Module	**114 lm/W**

Road Class (acc. to EN13201)	S1	S2	S3	S4	S5	S6
Pole Heights						
Pole Distance (Calculated in Dialux)						

ME1	ME2	ME3	ME4	ME5	ME6
12m					
<37m	<49m	<56m			



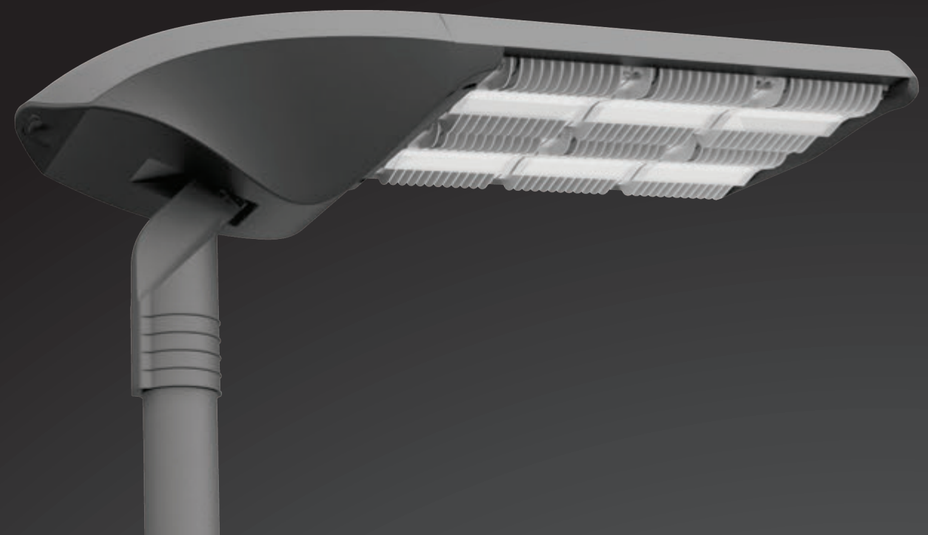


LUMINAIRE

CODE	DESCRIPTION	LIGHT SOURCE	POWER (W)	LUMEN (lm)	COLOR TEMPERATURE (K)
LL2024.676	8 * ML® MODULE		280	32000	4000

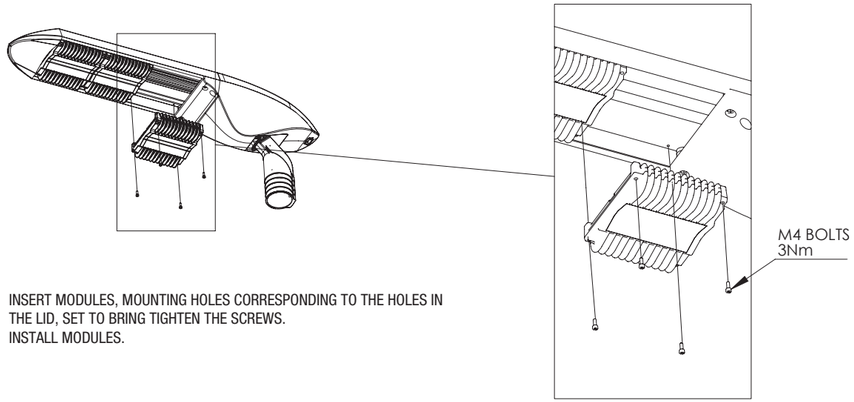
POLES

CODE	DESCRIPTION	H1	H2	H3	D1	D2	F	ANCHORAGE	FLANGE COVER	TERMINAL BOX
PAFK.052.100	ALUMINUM CONICAL POLE FLANGED	-	-	10000	Ø165	Ø76	244	90CJ007	C1G2D	51
PABK.052.100	ALUMINUM CONICAL POLE BURIED	1500	-	10000	Ø165	Ø76	-	-	-	51
PAFK.039.120	ALUMINUM CONICAL POLE FLANGED	-	-	12000	Ø200	Ø76	246	90DJ010	C1J2D	51
PABK.039.120	ALUMINUM CONICAL POLE BURIED	1700	-	12000	Ø200	Ø76	-	-	-	51



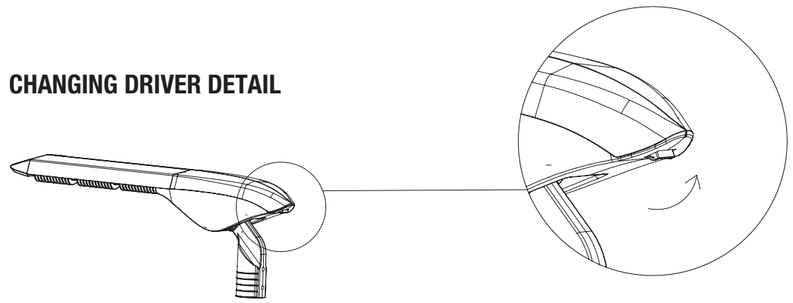
Installation Manuel

1 MODULE ASSEMBLY

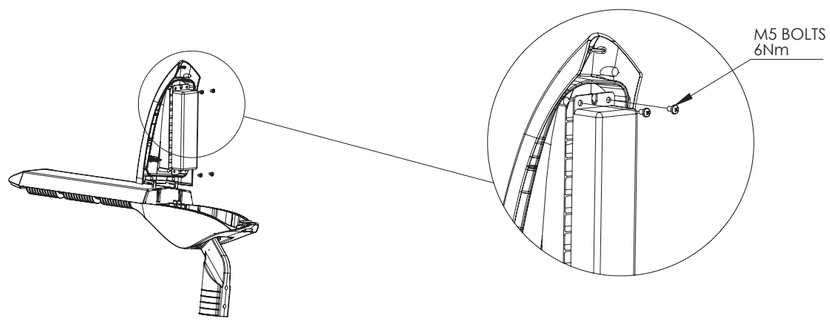


INSERT MODULES, MOUNTING HOLES CORRESPONDING TO THE HOLES IN THE LID, SET TO BRING TIGHTEN THE SCREWS.
INSTALL MODULES.

2 CHANGING DRIVER DETAIL

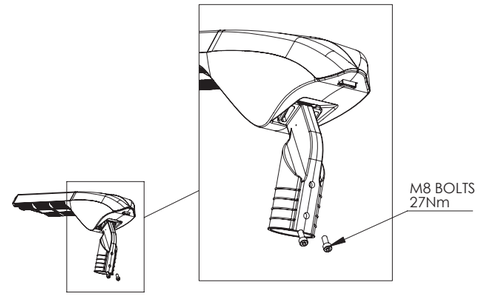


DIRECTION OF THE ARROW TO OPEN THE LID, PUSH THE LOCK



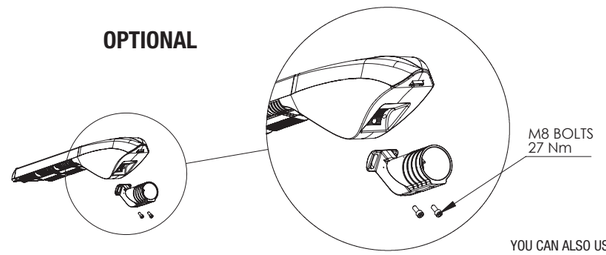
OPEN THE LID, SCREW OFF, CHANGE THE DRIVER.

3 BRACKET CONNECTION DETAIL



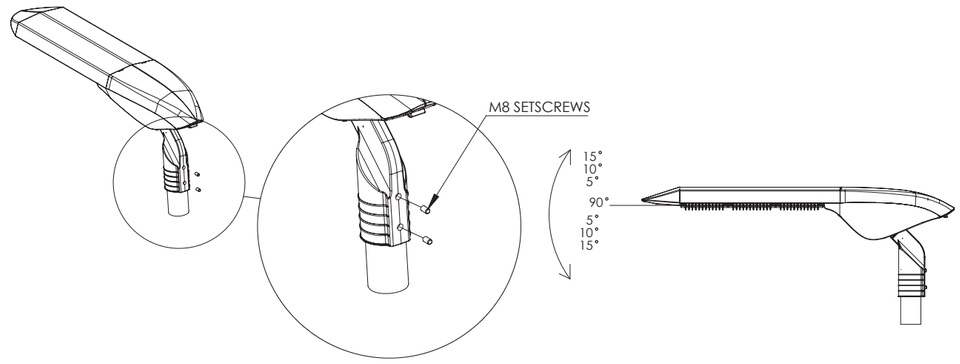
PLACE THE CONSOLE, TIGHTEN THE BOLTS AFTER ADJUST THE ANGLE.

OPTIONAL



YOU CAN ALSO USE THE CONSOLE HORIZONTALLY

4 POLE CONNECTION DETAIL



AFTER PLACING THE PRODUCT ON THE POLE, TIGHTEN THE SETSCREWS.

*Installation and Maintenance must be performed by authorized personnel only.
*Care should be used only original parts.

NOTE : All dimensions are millimeter.

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