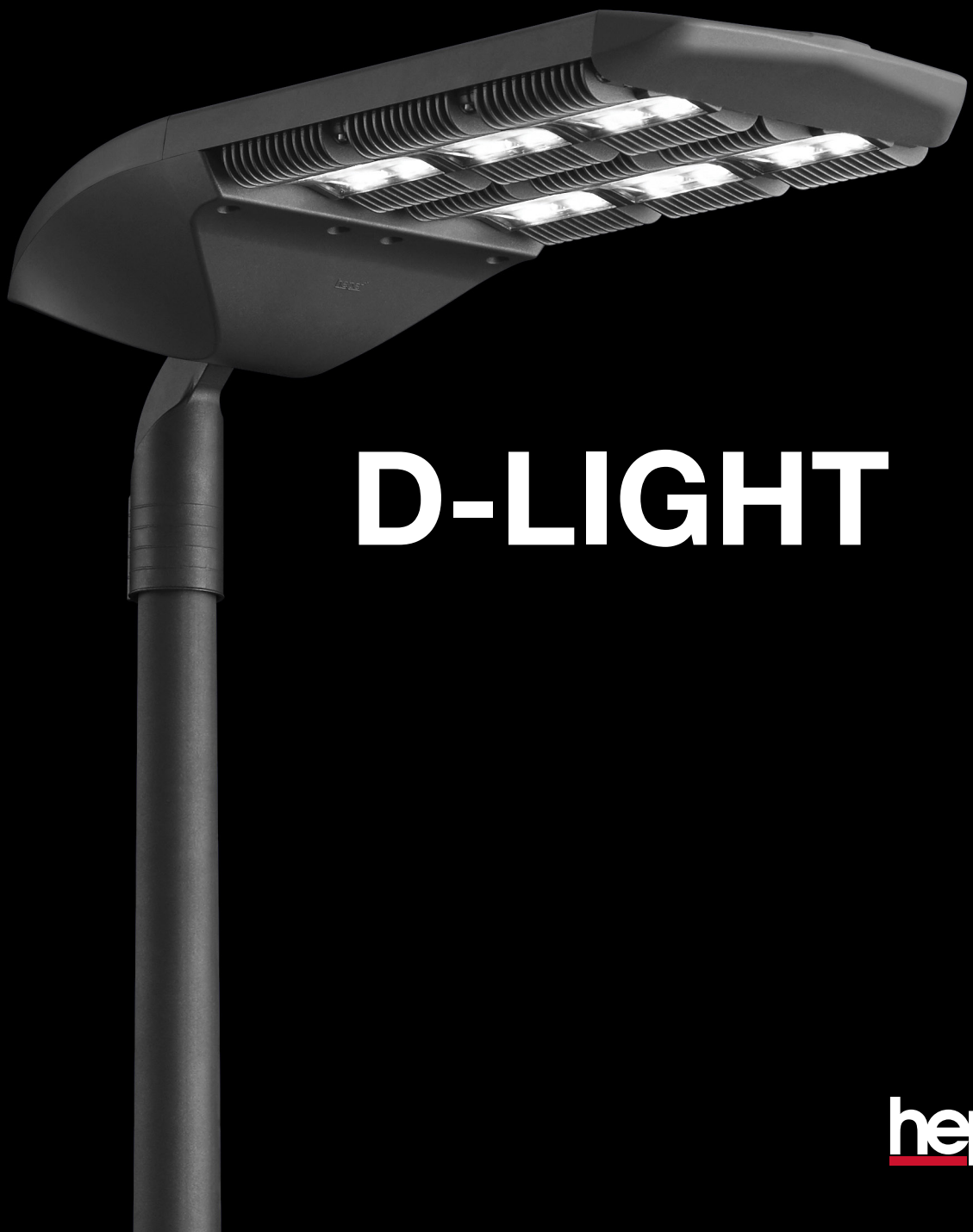
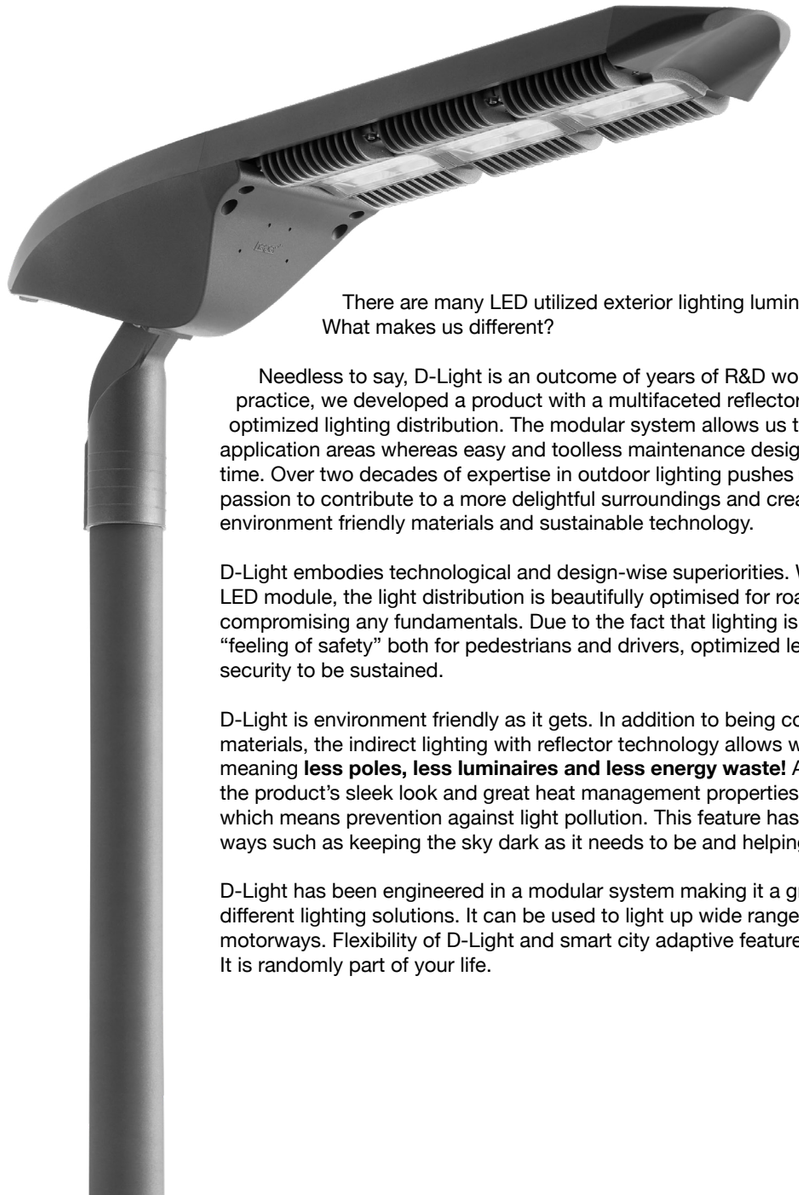


D-LIGHT

heper

OPTIMIZED LIGHT DISTRIBUTION WITH *MODULAR SOLUTIONS!*



There are many LED utilized exterior lighting luminaires out there in the market. What makes us different?

Needless to say, D-Light is an outcome of years of R&D work. Despite the common practice, we developed a product with a multifaceted reflector to sustain the best optimized lighting distribution. The modular system allows us to cover wide range of application areas whereas easy and toolless maintenance design reduces costs and saves time. Over two decades of expertise in outdoor lighting pushes us to do more! It is our passion to contribute to a more delightful surroundings and create lighting solutions with environment friendly materials and sustainable technology.

D-Light embodies technological and design-wise superiorities. With its patented Milestone® LED module, the light distribution is beautifully optimised for road lighting without compromising any fundamentals. Due to the fact that lighting is directly correlated with “feeling of safety” both for pedestrians and drivers, optimized levels of lighting helps public security to be sustained.

D-Light is environment friendly as it gets. In addition to being composed of sustainable materials, the indirect lighting with reflector technology allows wider light distribution meaning **less poles, less luminaires and less energy waste!** All is done while maintaining the product’s sleek look and great heat management properties. D-Light supplies full cut-off which means prevention against light pollution. This feature has utmost importance in many ways such as keeping the sky dark as it needs to be and helping volant habitants.

D-Light has been engineered in a modular system making it a great product to meet different lighting solutions. It can be used to light up wide range of areas from crosswalks to motorways. Flexibility of D-Light and smart city adaptive features makes it a city element. It is randomly part of your life.

01

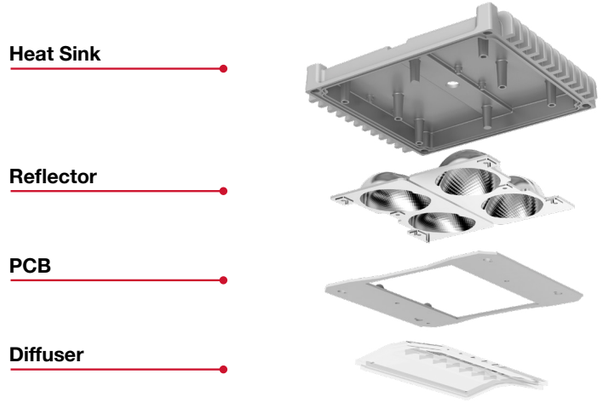
MILESTONE® LED MODULE
OPTICAL TECHNOLOGY

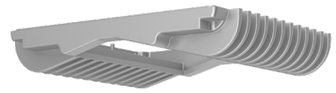
Heper's patented Milestone® LED module is the D-Light's prominent feature. It is an outcome of Heper's quest for excellence, incorporating years of multi-disciplinary engineering work. Instead of using standard PCB+LED chip+lens combination, we wanted to think outside the box to achieve a more optimised light distribution. This led us to align the LED chips upwards resulting with an indirect lighting concept. Light is reflected throughout the reflector all the way through. Thus, obtaining a wider bat-wing type of asymmetrical light distribution which is requested for road and street lighting. Light distribution is solely optimised for road lighting in Milestone® LED module. It means optimum lux and uniformity levels for your road classification even with lower number of luminaires used in a project.

Milestone® LED module is an IP66 graded module itself. Hence the fixture is only the housing for the light source. Using different number of modules in a fixture, it becomes possible to meet different road lighting classifications. Thanks to its modularity along with its optical excellence, Milestone® LED module is a state of the art light source.

02

MILESTONE® LED MODULE
STRUCTURE & TECHNICAL SPECIFICATIONS





MECHANICAL PROPERTIES

- Corrosion resistant die-cast aluminium housing.
- Easy installation, easier maintenance
- Optimized thermal management system
- Ingress protection: IP66, IK08
- Electrical Insulation: Class I-II
- The system complies with European standards EN60598; CE, ENEC and UL certified.
- Corrosion resistant and superior quality finishes for all weather conditions.

ELECTRICAL PROPERTIES

- LED Quantity: 4 High Power multichips.
- Power Consumption: 35W @700mA.
- PCB: Optimized PCB design with touchdown technology
- Various control options.
- Input Voltage: 220-240V / 120-277V

OPTICAL PROPERTIES

- Different number of module combinations for various lighting requirements.
- Color Temperature Range: 2700K-6500K
- Total Luminous Flux: 4000 lm for 4000K @700mA
- Lifetime: L90> 118.000 h
- Minimized Glare
- Multi-faceted reflector surface with efficiency >90%
- Smooth and full cut-off light distribution.

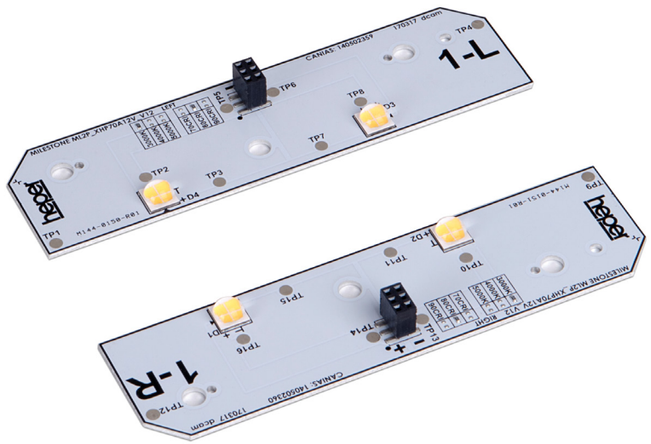
03

MILESTONE® LED MODULE
LED CHIP AND PCB TECHNOLOGY

The advantages LED brings to lighting applications are undeniable. Long lifetime, energy saving properties and their small size are the main ones. Milestone® LED module takes this to another level using only extreme high power, multi-die, best quality LED chips.

- Less than %10 loss at L90 at 35K hours. This is impressive when compared to %30 loss at L70 for a standard mid-power chip.
- Ability to use low number of chips provides smaller PCB for a better design.
- Being thermally excellent with thermal resistance rate of 0.9°C/W, LED lifetime is increased while requiring less heat sink area.
- MacAdam Step 3 chips bring optical consistency.

Milestone® LED module PCB design is also quite innovative. Constructed with materials with excellent thermal conductivity, two separate PCBs are used in one module. Thanks to its unique design, it is possible to control these two PCBs separately. It means just by changing control, it is possible to have different optical outputs.



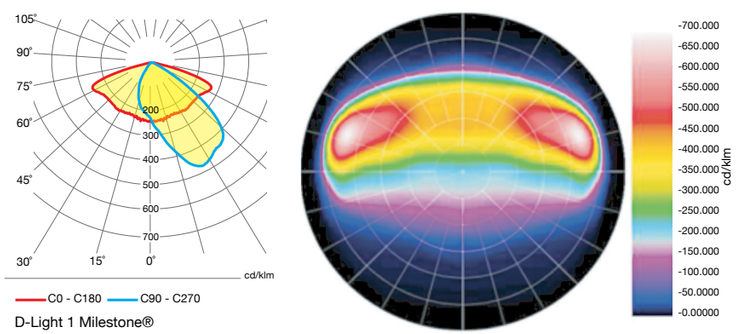
04

MILESTONE® LED MODULE
COMPLEX SURFACE REFLECTOR TECHNOLOGY

Milestone® LED module introduces the indirect lighting concept through its multifaceted reflectors. Light beams coming out of the upward aligned LED chips are reflected in a way that almost sending them horizontally with no uplight. Light can reach spaces that standard lenses can fail to send.

Using multifaceted reflector technology brings out other advantages as well. Such as more homogenous distribution and better glare management. Specially designed microfacets break the light in multiple directions resulting in a homogenously illuminated zone and since there is no direct eye contact with the light source, glare is majorly reduced.

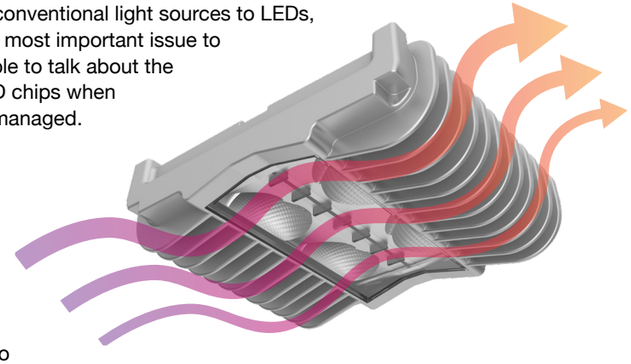
Reflectors used in Milestone® LED module is coated with high tech materials including silver and gold coating options for higher reflectivity levels and better efficiency.



D-Light 1 Milestone®

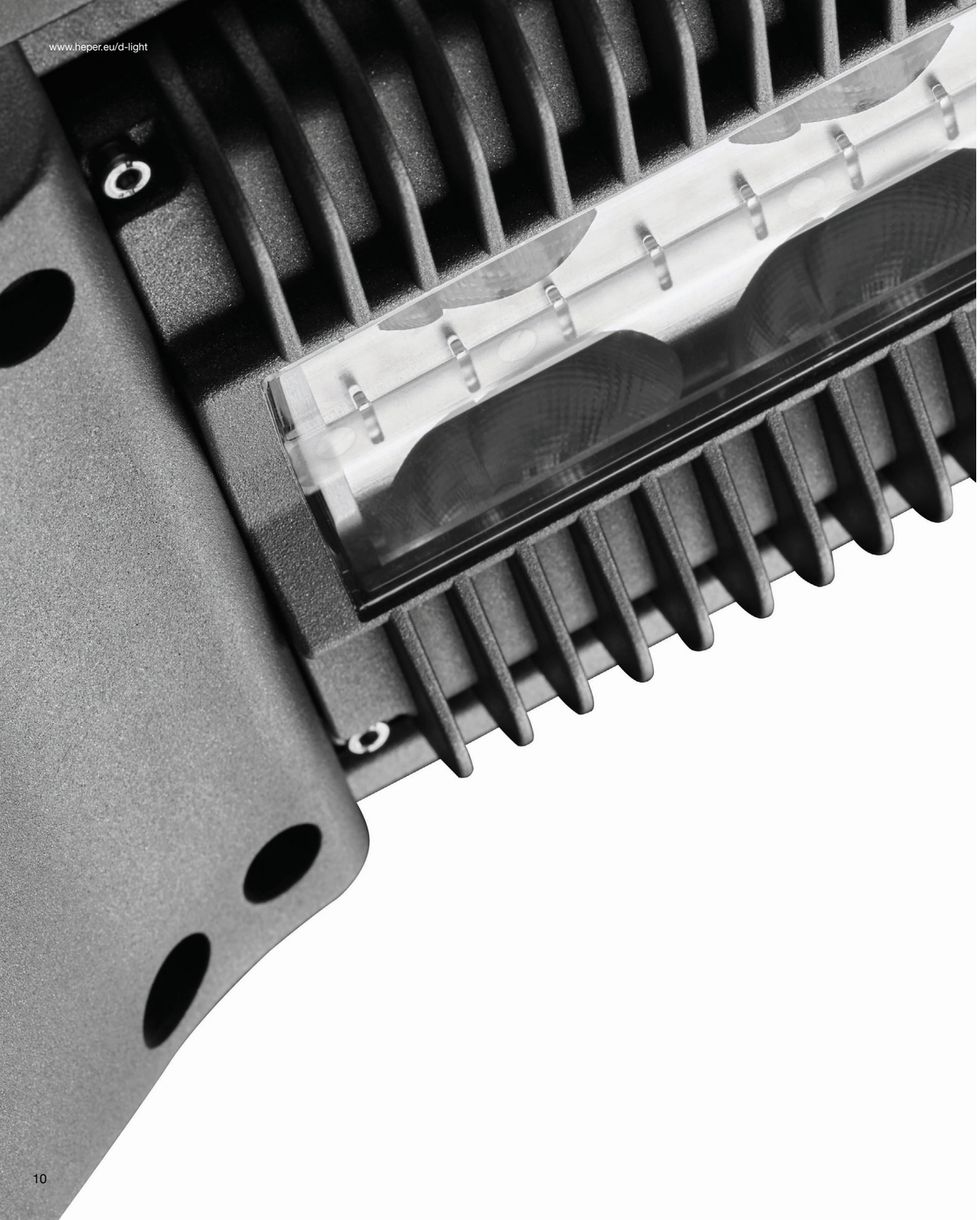
05

MILESTONE® LED MODULE
THERMAL OPTIMIZED HOUSING



Throughout the transition from conventional light sources to LEDs, heat management has been the most important issue to resolve. Afterall, it is only possible to talk about the high praised long lifetime of LED chips when the junction heat is sufficiently managed. Milestone® LED module body characteristic is designed to handle this problem in the best way possible.

The ability to align the chips upwards allowed us to handle this problem from underneath. Being a relatively easier space to manage the heat, bottom of the luminaire is also easier to access for cleaning when compared to the top. It is not exposed to direct sun light and dirt wouldn't pile up over the surface. It can also be easily cleaned from underneath with a hose. Increasing the heat transfer area, extra cooling ribs on the surface also helps managing this problem.



06

D-LIGHT & D-LIGHT L **TECHNICAL SPECIFICATIONS**

1/2/3/4/6/8 MILESTONE® LED MODULES, FOR OUTDOOR APPLICATIONS

APPLICATION AREAS

- Roads
- Streets
- Motorways
- Bridges
- Parking lots
- Pedestrian crosses
- Urban areas

GENERAL HIGHLIGHTS

- Equipped with Heper's patented Milestone® LED module
- Optimized road lighting distribution to meet various road classes
- Operating temperature: -40˚C / +55˚C
- Better thermal management with upward aligned LED chips
- Easy installation and maintenance with modular structure
- In compliance with EN 60598
- ENEC and CE certified
- UL Pending
- Tilt angle: +15 / -15
- Toolless Access to housing
- Auto on-off switch for maintenance

ELECTRICAL PROPERTIES

- Drive current: 350 mA, 525mA, 700mA
- Optimized PCB-Design; aluminum PCB or FR-4 PCB with touchdown technology
- Insulation class: CLASS I, CLASS II
- Energy class: A+
- Power factor: > 0.95
- Input Voltage: 220V-240V / 120V-277V at 50Hz / 60Hz
- Control type: On/Off, 1-10V, DALI, DynaDIM, AstroDIM
- Surge Protection: 10kV (optional)

OPTICAL PROPERTIES

- Equipped with Heper's patented Milestone® LED module
- Indirect lighting with reflector technology
- Homogenous lighting distribution through multifaceted reflectors
- Full cut-off with wide light distribution with no up light
- Better glare management with no direct eye contact with light source
- Extreme high power multi LED chips
- MacAdam Ellipse 3
- Lumen Output: 3500 lm – 32000 lm
- Color Temperature: 3000K, 4000K
- CRI > 70(4000K) , CRI > 80(3000K)
- Lumen depreciation: L90B50 > 118000 h
- Photobiological safety: Risk Group 0
- BUG Rating: B2 – U0 – G1
- Efficacy: 114 lm/W
- ULOR: 0%

BODY HOUSING & FINISH

- Corrosion resistant aluminum housing composed of die-cast and extrusion parts
- Electrostatic powder coating
- HM1 to HM5 standard colors with optional RAL codes
- Ingress protection: IP66
- Impact protection: IK08

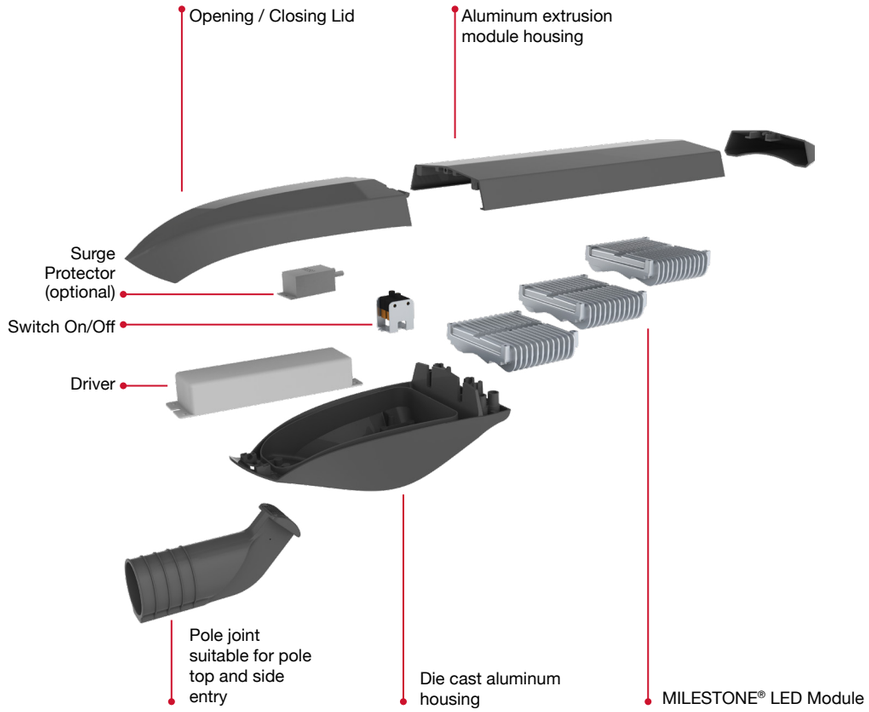
EXTRAS

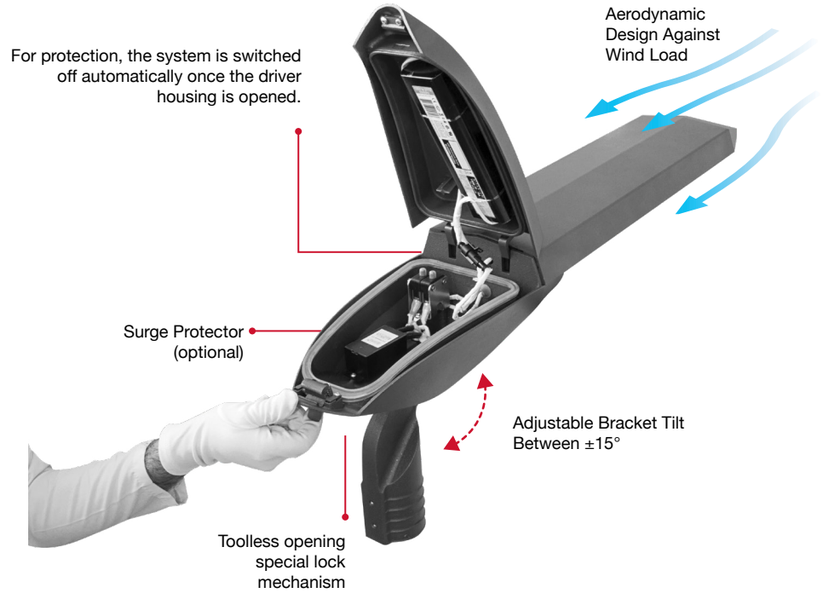
- Nema Socket for smart city applications
- Higher CRI LED chips
- Constant Light Output
- Programmable driver for different scenerios
- Different drive currents
- Marine grade coating
- Halogen free cabling
- Back Light Shield

CE IK08, IP66, EN60598

07
D-LIGHT
EASY MAINTENANCE

Our modular design stands for easy maintenance. Each module is individually replaced.
Thus, exchange within seconds has become possible. No tools, no special training. Easy? It is…





Module Replacement **Within Seconds**

ILLUMINATING YOUR LIFE!

D-LIGHT

Luminous flux: from 3500lm up to 16000lm with 1, 2, 3 & 4 Milestone® LED modules

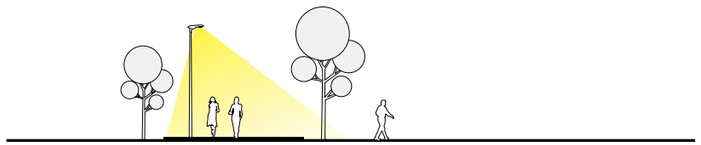
www.heper.eu/D-Light

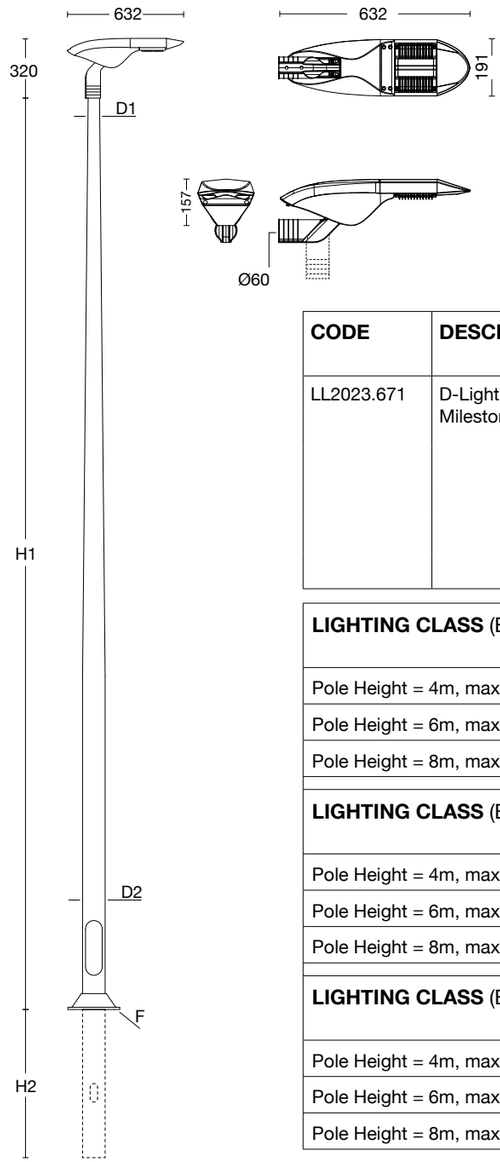
D-LIGHT PRODUCT FAMILY
TECHNICAL SPECIFICATIONS

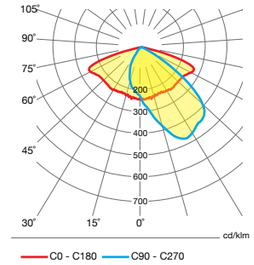
LUMINAIRE				
CODE	**DESCRIPTION**	**POWER (700 mA)**	**LUMEN**	**COLOR TEMPERATURE**
LL2023.671	D-Light 1 Milestone®	35W	3500 lm - 4000 lm	3000K / 4000K
LL2023.672	D-Light 2 Milestone®	70W	7000 lm - 8000 lm	3000K / 4000K
LL2023.673	D-Light 3 Milestone®	105W	10500 lm - 12000 lm	3000K / 4000K
LL2023.674	D-Light 4 Milestone®	140W	14000 lm - 16000 lm	3000K / 4000K

POLES								
CODE	**DESCRIPTION**	**H1**	**H2**	**D1**	**D2**	**ANCHORAGE**	**FLANGE COVER**	**CUT-OUT**
PAFK.055.050	Aluminum Conical Pole Flanged	5000	-	Ø60	Ø122	90BJ004	C1D2B	51
PABK.055.050	Aluminum Conical Pole Buried	5000	800	Ø60	Ø122	-	-	51
PAFK.013.060	Aluminum Conical Pole Flanged	6000	-	Ø60	Ø122	90BJ004	C1D2B	51
PABK.013.060	Aluminum Conical Pole Buried	6000	1000	Ø60	Ø122	-	-	51
PAFK.050.060	Aluminum Conical Pole Flanged	6000	-	Ø60	Ø148	90CJ005	C1F2C	51
PABK.050.060	Aluminum Conical Pole Buried	6000	1000	Ø60	Ø148	-	-	51
PAFK.096.080	Aluminum Conical Pole Flanged	8000	-	Ø60	Ø165	90CJ006	C1G2C	51
PABK.096.080	Aluminum Conical Pole Buried	8000	1200	Ø60	Ø165	-	-	51

1*MILESTONE®







CODE	DESCRIPTION	CCT	DRIVE CURRENT	LUMEN OUTPUT	POWER
LL2023.671	D-Light 1 Milestone®	3000K	350mA	1870 lm	20W
		3000K	525mA	2700 lm	28W
		3000K	700mA	3500 lm	35W
		4000K	350mA	2150 lm	20W
		4000K	525mA	3100 lm	28W
		4000K	700mA	4000 lm	35W

LIGHTING CLASS (EN13201:2016)	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**
Pole Height = 4m, max pole distance:	**25m**	**25m***	**25m***	**25m***	**25m***	**25m***
Pole Height = 6m, max pole distance:	**20m**	**31m**	**35m**	**36m***	**36m***	**36m***
Pole Height = 8m, max pole distance:		**25m**	**33m**	**45m**	**48m***	**48m***

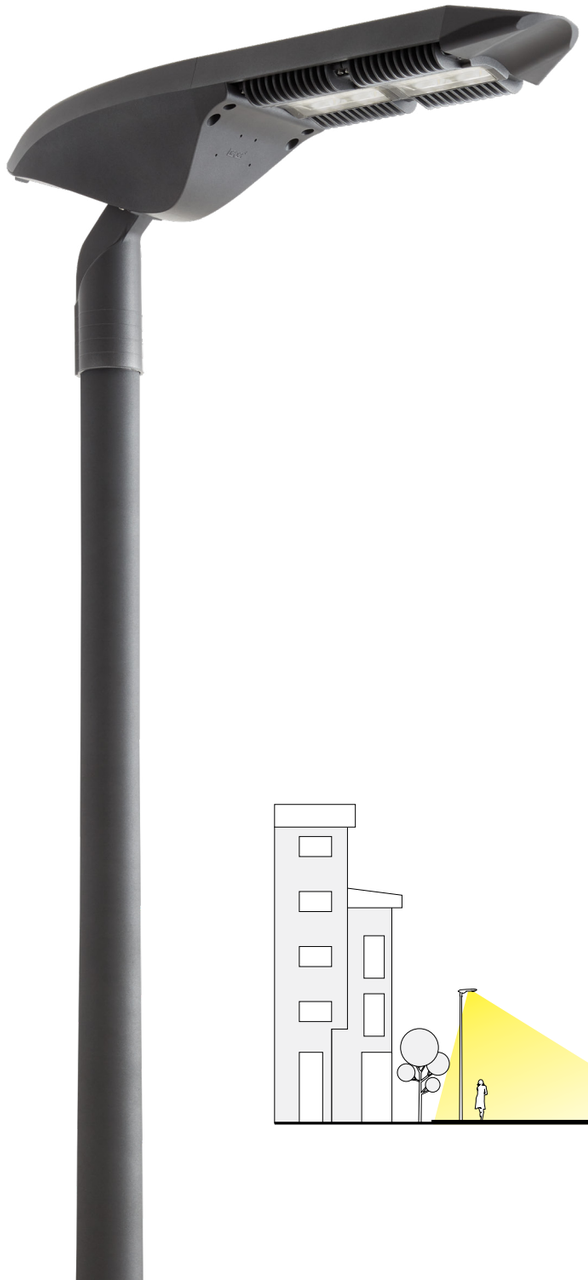
LIGHTING CLASS (EN13201:2016)	**M1**	**M2**	**M3**	**M4**	**M5**	**M6**
Pole Height = 4m, max pole distance:						**21m***
Pole Height = 6m, max pole distance:			**18m**	**25m**	**32m**	**32m***
Pole Height = 8m, max pole distance:				**20m**	**31m**	**42m**

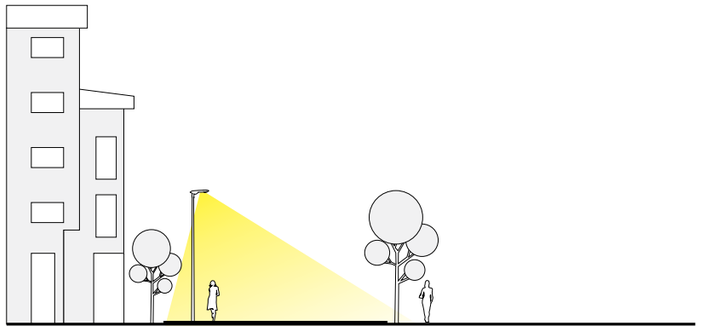
LIGHTING CLASS (EN13201:2016)	**C0**	**C1**	**C2**	**C3**	**C4**	**C5**
Pole Height = 4m, max pole distance:		**16m**	**17m**	**17m***	**17m***	**17m***
Pole Height = 6m, max pole distance:			**15m**	**18m**	**18m***	**18m***
Pole Height = 8m, max pole distance:					**25m**	**25m***

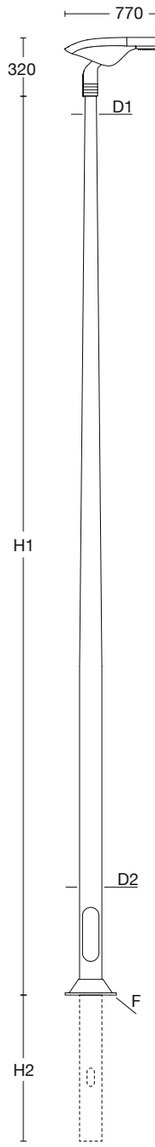
D-Light 1ML
Weight: 6.5 kg
Wind surface area: 0.05 / 0.11 m2

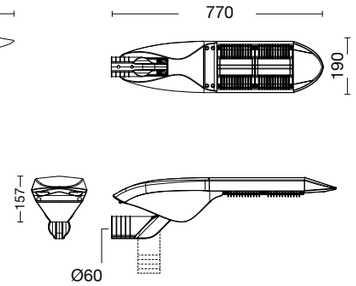
* Luminaire has to be dimmed
Note: These values are based on calculations and for recommendation purpose only.
Typical applications: residential streets, bicycle roads and walkways; low pole heights.

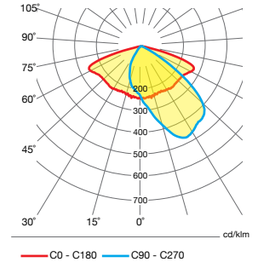
2*MILESTONE®











CODE	DESCRIPTION	CCT	DRIVE CURRENT	LUMEN OUTPUT	POWER
LL2023.672	D-Light 2 Milestone®	3000K	350mA	3750 lm	39W
		3000K	525mA	5400 lm	53W
		3000K	700mA	7000 lm	70W
		4000K	350mA	4300 lm	39W
		4000K	525mA	6200 lm	53W
		4000K	700mA	8000 lm	70W

LIGHTING CLASS (EN13201:2016)	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**
Pole Height = 6m, max pole distance:	**35m**					
Pole Height = 8m, max pole distance:	**33m**	**45m**	**48m**			

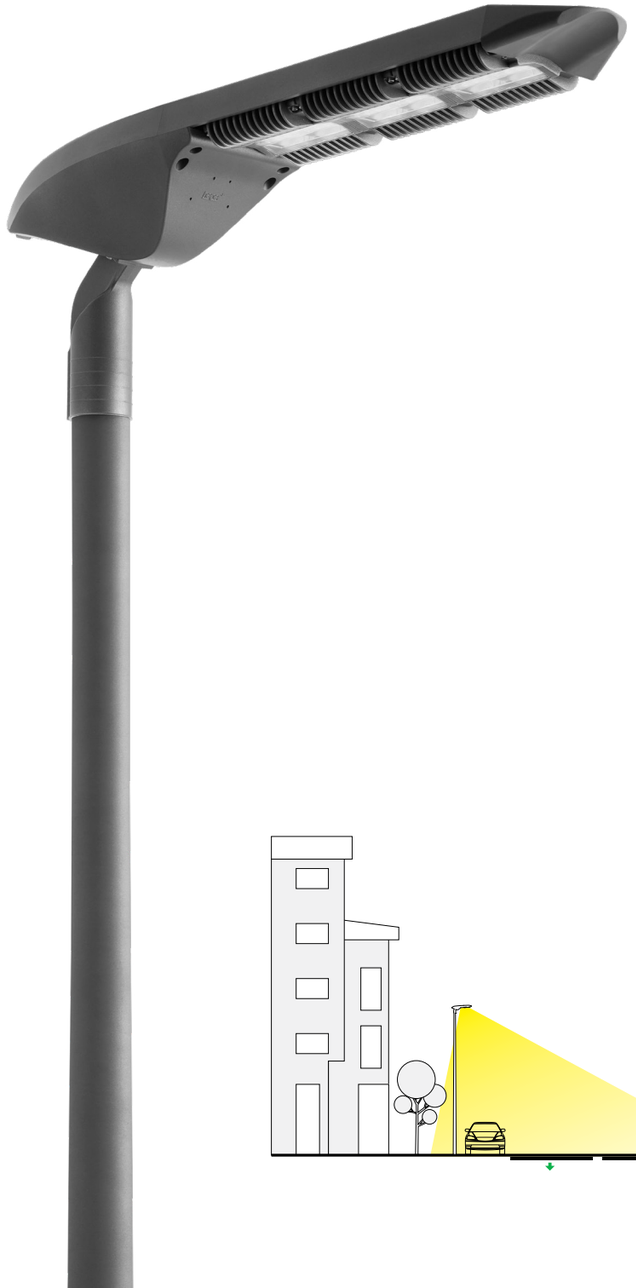
LIGHTING CLASS (EN13201:2016)	**M1**	**M2**	**M3**	**M4**	**M5**	**M6**
Pole Height = 6m, max pole distance:						
Pole Height = 8m, max pole distance:		**20m**	**31m**	**35m**		

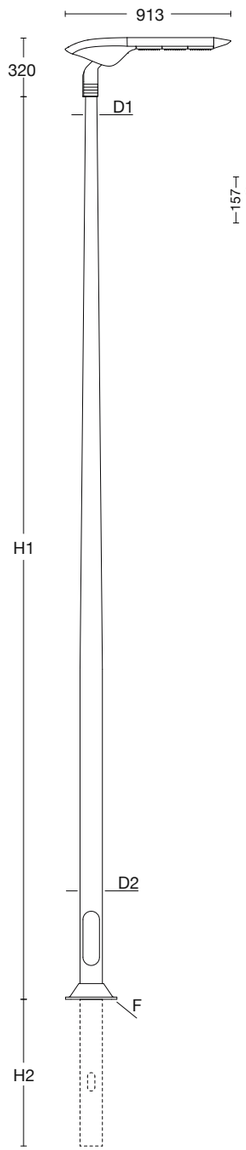
LIGHTING CLASS (EN13201:2016)	**C0**	**C1**	**C2**	**C3**	**C4**	**C5**
Pole Height = 6m, max pole distance:		**18m**				
Pole Height = 8m, max pole distance:			**25m**			

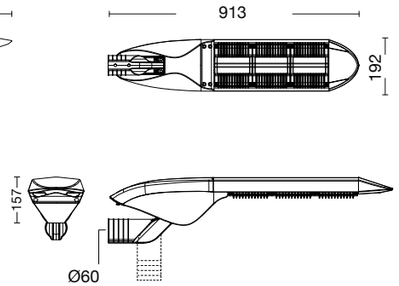
D-Light 2ML
Weight: 7.5 kg
Wind surface area: 0.06 / 0.13 m2.

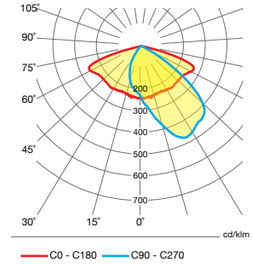
Note: These values are based on calculations and for recommendation purpose only.
Typical applications: residential streets, bicycle roads, walkways, pedestrian areas; low pole heights.

3*MILESTONE®









CODE	DESCRIPTION	CCT	DRIVE CURRENT	LUMEN OUTPUT	POWER
LL2023.673	D-Light 3 Milestone®	3000K	350mA	5650 lm	60W
		3000K	525mA	8100 lm	85W
		3000K	700mA	10500 lm	105W
		4000K	350mA	6400 lm	60W
		4000K	525mA	9250 lm	85W
		4000K	700mA	12000 lm	105W

LIGHTING CLASS (EN13201:2016)	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**
Pole Height = 6m, max pole distance:	**45m**					
Pole Height = 8m, max pole distance:	**32m**	**50m**	**66m**			

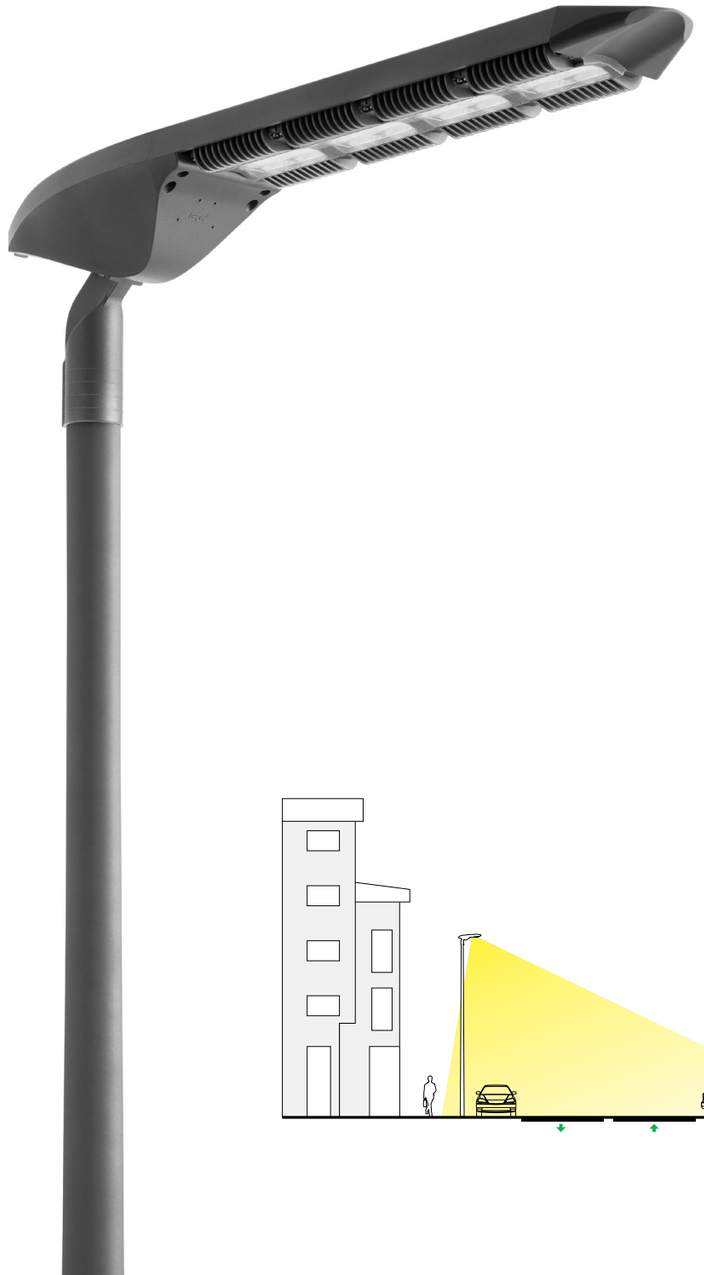
LIGHTING CLASS (EN13201:2016)	**M1**	**M2**	**M3**	**M4**	**M5**	**M6**
Pole Height = 6m, max pole distance:	**23m**	**31m**	**35m**			
Pole Height = 8m, max pole distance:			**30m**	**40m**	**60m**	**64m**

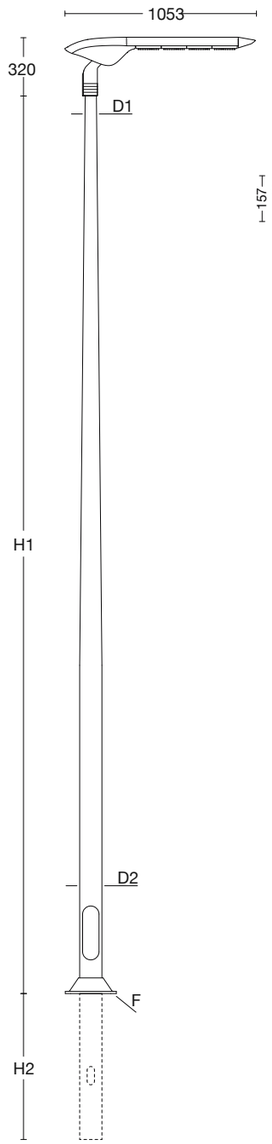
LIGHTING CLASS (EN13201:2016)	**C0**	**C1**	**C2**	**C3**	**C4**	**C5**
Pole Height = 6m, max pole distance:		**25m**				
Pole Height = 8m, max pole distance:			**24m**	**32m**	**40m**	

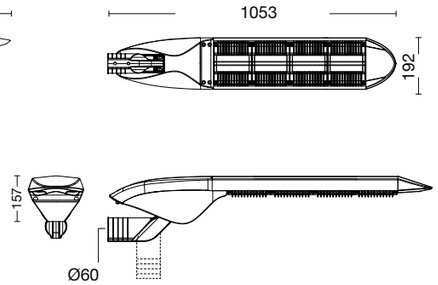
D-Light 3ML
Weight: 8.6 kg
Wind surface area: 0.07 / 0.15 m2

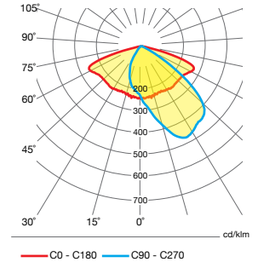
Note: These values are based on calculations and for recommendation purpose only
Typical applications: pedestrian areas, roads with two or three lanes; medium pole heights

4*MILESTONE®









CODE	DESCRIPTION	CCT	DRIVE CURRENT	LUMEN OUTPUT	POWER
LL2023.674	D-Light 4 Milestone®	3000K	350mA	7500 lm	80W
		3000K	525mA	10800 lm	112W
		3000K	700mA	14000 lm	140W
		4000K	350mA	8600 lm	80W
		4000K	525mA	12400 lm	112W
		4000K	700mA	16000 lm	140W

LIGHTING CLASS (EN13201:2016)	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**
Pole Height = 6m, max pole distance:	**48m**					
Pole Height = 8m, max pole distance:	**44m**	**66m**				

LIGHTING CLASS (EN13201:2016)	**M1**	**M2**	**M3**	**M4**	**M5**	**M6**
Pole Height = 6m, max pole distance:	**29m**					
Pole Height = 8m, max pole distance:		**26m**	**40m**	**52m**	**64m**	

LIGHTING CLASS (EN13201:2016)	**C0**	**C1**	**C2**	**C3**	**C4**	**C5**
Pole Height = 6m, max pole distance:	**20m**	**25m**				
Pole Height = 8m, max pole distance:		**22m**	**32m**	**40m**		

D-Light 4ML
Weight: 9.6 kg
Wind surface area: 0.08 / 0.17 m2

Note: These values are based on calculations and for recommendation purpose only
Typical applications: roads with two or three lanes, additional parking - and cycle - lanes; medium pole heights

D-LIGHT L

Luminous flux: from 14000lm up to 32000lm with 4, 6 and 8 Milestone ® LED modules

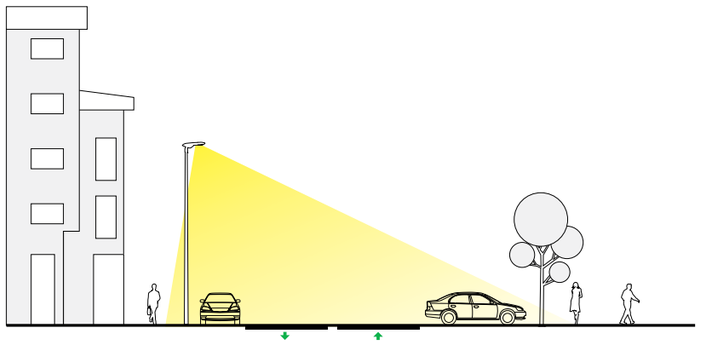
www.heper.eu/D-Light

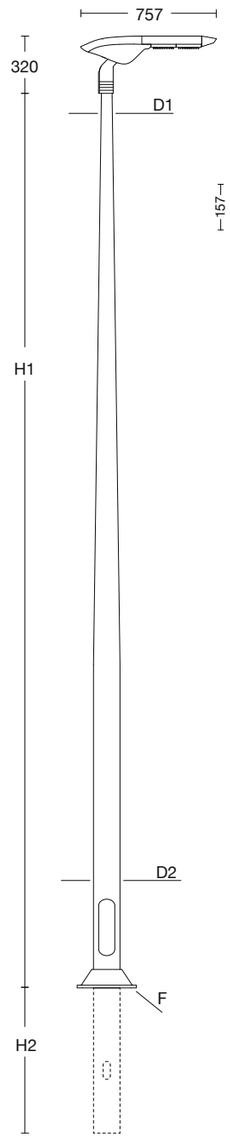
D-LIGHT L PRODUCT FAMILY
TECHNICAL SPECIFICATIONS

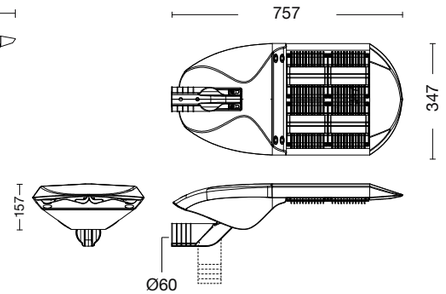
LUMINAIRE				
CODE	**DESCRIPTION**	**POWER (700 mA)**	**LUMEN**	**COLOR TEMPERATURE**
LL2024.674	D-Light L 4 Milestone®	140W	14000 lm - 16000 lm	3000K / 4000K
LL2024.676	D-Light L 6 Milestone®	210W	21000 lm - 24000 lm	3000K / 4000K
LL2024.678	D-Light L 8 Milestone®	280W	28000 lm - 32000 lm	3000K / 4000K

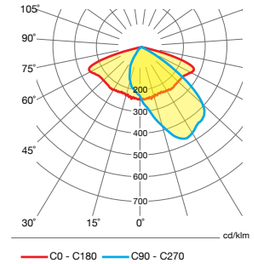
POLES								
CODE	**DESCRIPTION**	**H1**	**H2**	**D1**	**D2**	**ANCHORAGE**	**FLANGE COVER**	**CUT-OUT**
PAFK.096.080	Aluminum Conical Pole Flanged	8000	-	Ø60	Ø165	90CJ006	C1G2C	51
PABK.096.080	Aluminum Conical Pole Buried	8000	1200	Ø60	Ø165	-	-	51
PAFK.097.100	Aluminum Conical Pole Flanged	10000	-	Ø60	Ø180	90DJ008	C1H2D	51
PABK.097.100	Aluminum Conical Pole Buried	10000	1500	Ø60	Ø180	-	-	51
PAFK.098.120	Aluminum Conical Pole Flanged	12000	-	Ø60	Ø200	90DJ010	C1J2D	51
PABK.098.120	Aluminum Conical Pole Buried	12000	1700	Ø60	Ø200	-	-	51

4*MILESTONE®









CODE	DESCRIPTION	CCT	DRIVE CURRENT	LUMEN OUTPUT	POWER
LL2024.674	D-Light L 4 Milestone®	3000K	350mA	7500 lm	80W
		3000K	525mA	10800 lm	112W
		3000K	700mA	14000 lm	140W
		4000K	350mA	8600 lm	80W
		4000K	525mA	12400 lm	112W
		4000K	700mA	16000 lm	140W

LIGHTING CLASS (EN13201:2016)	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**
Pole Height = 6m, max pole distance:	**48m**					
Pole Height = 8m, max pole distance:	**44m**	**66m**				

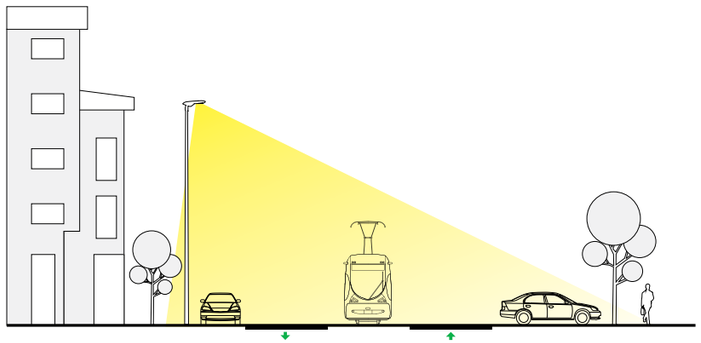
LIGHTING CLASS (EN13201:2016)	**M1**	**M2**	**M3**	**M4**	**M5**	**M6**
Pole Height = 6m, max pole distance:	**29m**					
Pole Height = 8m, max pole distance:		**26m**	**40m**	**52m**	**64m**	

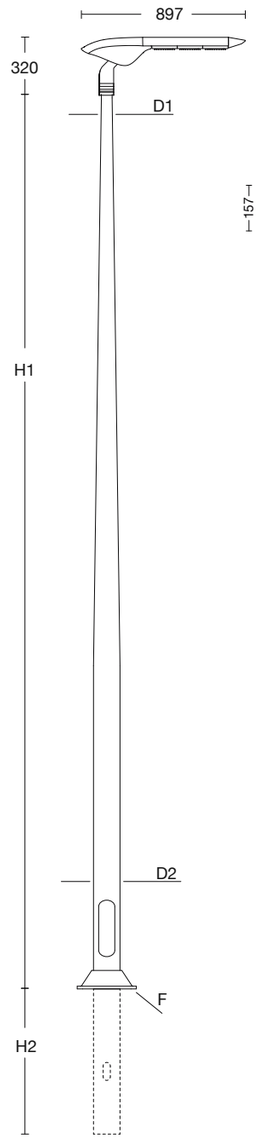
LIGHTING CLASS (EN13201:2016)	**C0**	**C1**	**C2**	**C3**	**C4**	**C5**
Pole Height = 6m, max pole distance:	**20m**	**25m**				
Pole Height = 8m, max pole distance:		**22m**	**32m**	**40m**		

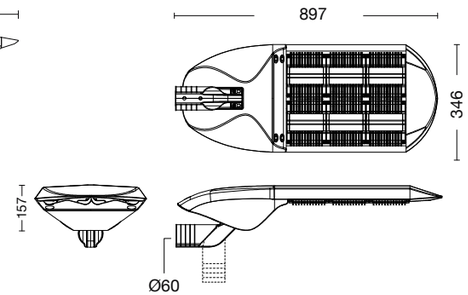
D-Light L 4ML
Weight: 11.5 kg
Wind surface area: 0.06 / 0.23 m2

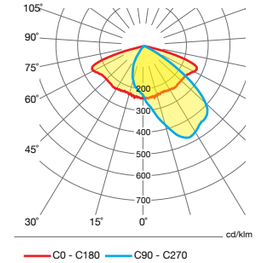
Note: These values are based on calculations and for recommendation purpose only
Typical applications: roads with two or three lanes, additional parking - and cycle - lanes; medium pole heights

6*MILESTONE®









CODE	DESCRIPTION	CCT	DRIVE CURRENT	LUMEN OUTPUT	POWER
LL2024.676	D-Light L 6 Milestone®	3000K	350mA	11250 lm	120W
		3000K	525mA	16000 lm	165W
		3000K	700mA	21000 lm	210W
		4000K	350mA	13000 lm	120W
		4000K	525mA	18000 lm	165W
		4000K	700mA	24000 lm	210W

LIGHTING CLASS (EN13201:2016)	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**
Pole Height = 6m, max pole distance:						
Pole Height = 8m, max pole distance:	**66m**					

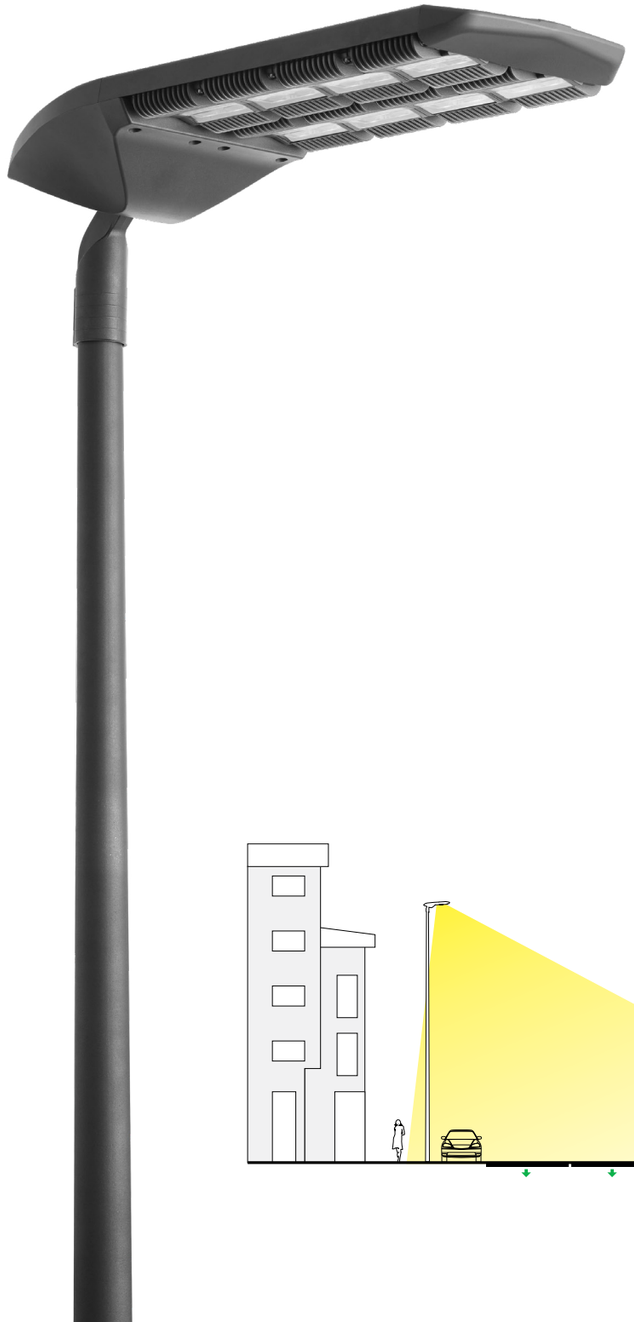
LIGHTING CLASS (EN13201:2016)	**M1**	**M2**	**M3**	**M4**	**M5**	**M6**
Pole Height = 6m, max pole distance:	**32m***					
Pole Height = 8m, max pole distance:	**30m**	**40m**	**52m**			

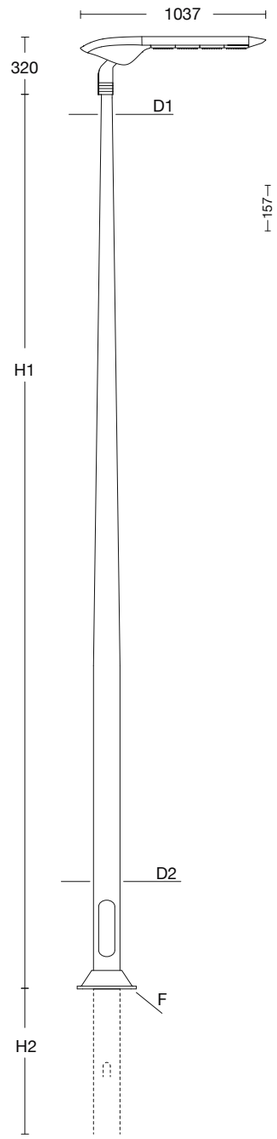
LIGHTING CLASS (EN13201:2016)	**C0**	**C1**	**C2**	**C3**	**C4**	**C5**
Pole Height = 6m, max pole distance:	**25m**					
Pole Height = 8m, max pole distance:	**20m**	**32m**	**40m**			

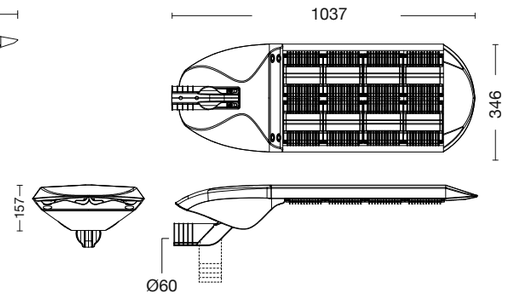
D-Light L 6ML
Weight: 14 kg
Wind surface area: 0.07 / 0.28 m2

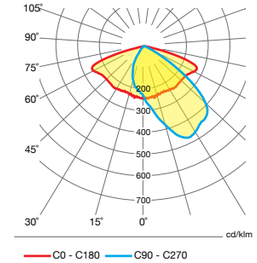
* anti-glare shield is required
Note: These values are based on calculations and for recommendation purpose only
Typical applications: roads with two or three lanes, high traffic, additional parking - and cycle - lanes; high pole heights

8*MILESTONE®









CODE	DESCRIPTION	CCT	DRIVE CURRENT	LUMEN OUTPUT	POWER
LL2024.678	D-Light L 8 Milestone®	3000K	350mA	15000 lm	160W
		3000K	525mA	21600 lm	225W
		3000K	700mA	28000 lm	280W
		4000K	350mA	17200 lm	160W
		4000K	525mA	24800 lm	225W
		4000K	700mA	32000 lm	280W

LIGHTING CLASS (EN13201:2016)	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**
Pole Height = 6m, max pole distance:						
Pole Height = 8m, max pole distance:	**66m**					

LIGHTING CLASS (EN13201:2016)	**M1**	**M2**	**M3**	**M4**	**M5**	**M6**
Pole Height = 6m, max pole distance:						
Pole Height = 8m, max pole distance:	**40m**	**48m**				

LIGHTING CLASS (EN13201:2016)	**C0**	**C1**	**C2**	**C3**	**C4**	**C5**
Pole Height = 6m, max pole distance:						
Pole Height = 8m, max pole distance:	**26m**	**40m**				

D-Light L 8ML
Weight: 11.5 kg
Wind surface area: 0.06 / 0.23 m2

Note: These values are based on calculations and for recommendation purpose only
Typical applications: roads with two, three or four lanes, high traffic, high speed, additional parking - and cycle - lanes; high pole heights

2018-MNLGHT-290110.01
Printed on 29.01.2018

HPR Pazarlama A.Ş.
1. Organize Sanayi Bölgesi Uygurlar Cad. No:1 Sincan (06935), Ankara, Türkiye
T: +90 312 267 54 30 (pbx)
F: +90 312 267 54 31
E: info@heper.eu
W: www.heper.eu

www.heper.eu