



**INDUSTRIAL UNITS
DYSONS ROAD
EDMUNTON
EXTERNAL LIGHTING
PROPOSALS**

CLIENT:
GRAFTONGATE
THE OLD FORGE
49 HIGH STREET
HENLEY-IN-ARDEN
B95 5AA

PREPARED BY:
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Drawings and documents

B3526/EXT/100 – External Lighting & Isolux Plot

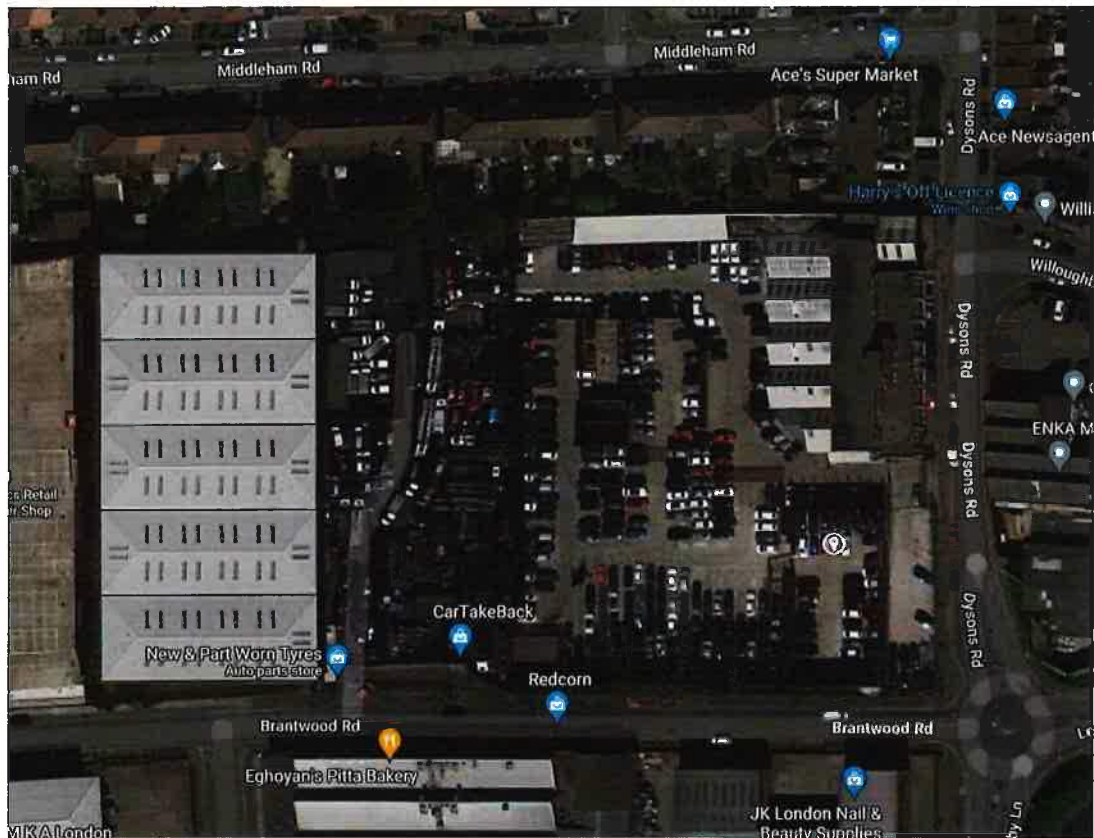
**Holophane D-Series Floodlight
Holophane Factor Street Light
Holophane Denver Elite Wall**

1.0 INTRODUCTION

This report has been produced at the request of Graftongate to detail the external lighting proposals at the new industrial development, Dysons Road, Edmunton.

The scheme comprises 7 industrial units, over two blocks with associated service yards, car parks and external areas

The site is surrounded by other industrial units to the East, South and West. Residential properties are located to the North of the site and will be considered as part of the external lighting proposals.



There are no known wildlife corridors located around the site.

2.0 INDUSTRIAL DEVELOPMENT

2.1 Requirements and Standards

- The British Standard – BS5489 – 2020 – Street Lighting;
- CIBSE Society of Light and Lighting Guidance Requirements;
- ILP Guidance note 01/20 for the reduction of obtrusive light 2020
- ILP Guidance note 08/18 Bats and Artificial lighting in the UK

The table below details the proposed design levels proposed to each area of the site. The detailed design will be undertaken by the design and build contractor and final information provided for approval by the planning department.

Area of Site	Lux Level at Ground	Uniformity
Service Yards /Car Parks	25lux	20%
Access Roads	15-20 lux	20%
Building Perimeter	5 to 10 lux	5%

Light Pollution

The lighting has been designed to comply with relevant requirement of the ILP Guidance note for the reduction of obtrusive light. The following tables are extracted from the document for reference. The lighting has been designed for environmental zone E3.

Table 2: Environmental zones

Zone	Surrounding	Lighting environment	Examples
E0	Protected	Dark (SQM 20.5+)	Astronomical Observable dark skies, UNESCO starlight reserves, IDA dark sky places
E1	Natural	Dark (SQM 20 to 20.5)	Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty, IDA buffer zones etc.

Table 3 (CIE 150 table 2): Maximum values of vertical illuminance on properties.

Light technical parameter	Application conditions	Environmental zone				
		E0	E1	E2	E3	E4
Illuminance in the vertical plane (E_v)	Pre-curfew	n/a	2 lx	5 lx	10 lx	25 lx
	Post-curfew	n/a	<0.1 lx*	1 lx	2 lx	5 lx

Table 4 (CIE 150 table 3 (amended)): Limits for the luminous intensity of bright luminaires¹.

Light technical parameter	Application conditions	Luminaire group (projected area A_p in m^2)					
		$0 < A_p \leq 0.002$	$0.002 < A_p \leq 0.01$	$0.01 < A_p \leq 0.03$	$0.03 < A_p \leq 0.13$	$0.13 < A_p \leq 0.50$	$A_p > 0.5$
Maximum luminous intensity emitted by luminaire (I in cd)	E0						
	Pre-curfew	0	0	0	0	0	0
	Post-curfew	0	0	0	0	0	0
	E1						
	Pre-curfew	0.29 <i>d</i>	0.63 <i>d</i>	1.3 <i>d</i>	2.5 <i>d</i>	5.1 <i>d</i>	2,500
	Post-curfew	0	0	0	0	0	0
	E2						
	Pre-curfew	0.57 <i>d</i>	1.3 <i>d</i>	2.5 <i>d</i>	5.0 <i>d</i>	10 <i>d</i>	7,500
	Post-curfew	0.29 <i>d</i>	0.63 <i>d</i>	1.3 <i>d</i>	2.5 <i>d</i>	5.1 <i>d</i>	500
	E3						
	Pre-curfew	0.86 <i>d</i>	1.9 <i>d</i>	3.8 <i>d</i>	7.5 <i>d</i>	15 <i>d</i>	10,000
	Post-curfew	0.29 <i>d</i>	0.63 <i>d</i>	1.3 <i>d</i>	2.5 <i>d</i>	5.1 <i>d</i>	1,000
	E4						
	Pre-curfew	1.4 <i>d</i>	3.1 <i>d</i>	6.3 <i>d</i>	13 <i>d</i>	26 <i>d</i>	25,000
	Post-curfew	0.29 <i>d</i>	0.63 <i>d</i>	1.3 <i>d</i>	2.5 <i>d</i>	5.1 <i>d</i>	2,500
Aid to gauging A_p		2 to 5cm	5 to 10cm	10 to 20cm	20 to 40cm	40 to 80cm	>80cm
Geometric mean of diameter (cm)		3.2	7.1	14.1	26.3	56.6	>80
Corresponding A_p representative area (m^2)		0.0008	0.004	0.016	0.063	0.251	>0.5

Table 6 (CIE 150 table 5): Maximum values of upward light ratio (ULR) of luminaires.

Light technical parameter	Environmental zones				
	E0	E1	E2	E3	E4
Upward light ratio (ULR)/%	0	0	2.5	5	15

2.2 Proposed Design

The proposed design will comprise a mixture of building and column mounted LED light fittings to achieve the lighting levels detailed within section 2.1 of this report.

All fittings will be of the flat glass style with 0% upward light distribution.

Floodlights located on the buildings will be mounted at 8m, the street lights will be mounted on 8m columns and the perimeter bulkheads will be mounted at 2.5m.

Details of the light fittings are provided within section 3.2 of this report.

2.3 Controls

The External lighting system will be provided with a lighting control system. The system will comprise daylight sensor, time switch and manual override.

The controls will be configured to extinguish the external lighting between the hours of 23:00 and 07:00.

2.4 Technologies

Consideration has been taken for the choice of light sources and the following factors have been chosen when specifying the fittings:

- Energy efficiency – The efficiency of the complete lighting installation, including the effectiveness of the light source, control gear and luminaire optic combination.
- Colour rendering – The colour rendering attributes of the light source.
- Colour appearance
- Lamp life and luminous flux depreciation

The proposed lighting is based on LED technology and has an efficiency in excess of 70 luminaire lumens per circuit watt. The fittings will have a life expectancy of 70,000 hours and a colour temperature of 3000K.

All lighting is LED with no UV component and with a colour temperature of 3000k as detailed with the ILP guidance notes for Bats.

3.0 LIGHTING CALCULATIONS

3.1 Dialux Calculations

Calculations utilising Dialux software have been undertaken and the results are appended to this report. An overspill lux plot has been produced which details the isolines at 0.2, 0.5 and 1.0 lux.

The calculations produce average lux levels to each area of the development along with the Isolux overspill plots for the scheme.

Vertical calculations have been carried out along the residential buildings to the North of the site. The vertical calculations have been taken to a height of 10m.

The bulkheads to the perimeter of the site are mounted at 2.5m and produce a downward light distribution so glare from the development to the residential buildings is greatly reduced. The main lights to the service yards are shielded from the residents by the buildings. Therefore the glare calculations which will affect the residents have not been undertaken.

3.2 Light Fittings

The proposed light fittings are detailed below:

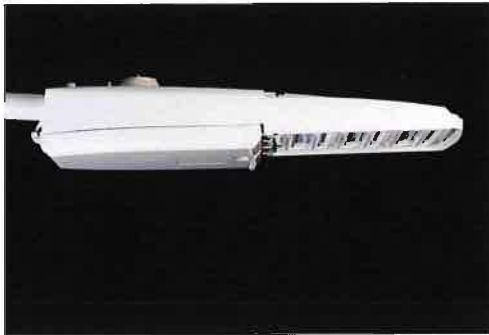
Holophane Lighting D-Series Floodlight

Single-piece die-cast aluminium housing, that conforms to EN1706 AC-46500, with integral heat sink fins to optimise thermal management through conductive cooling. LED modules are IP65 with individual lenses, and high grade aluminium housing to transfer heat away from the LEDs and dissipate through the finned housing for cooling. The LED driver is mounted in direct contact



with the finned housing for cooling to promote low operating temperature and long system life. Housing is completely sealed against moisture and environmental contaminants (IP65). Installation is via the integrated mounting block and integral arm that facilitate a quick and easy installation.

Holophane Lighting Factor Small Street light



The 'finned' luminaire body, designed to dissipate heat, is manufactured from high pressure die cast aluminium that conforms to EN1706 AC-46500. A die cast aluminium door with tool less trigger latch allows access to the gear compartment concealing the IP65 control gear and connectors. The IP65 LED optical modules, with individual lenses, are mounted directly to the cast aluminium

housing and wired in series. A thermal transfer interface is sandwiched between the LED module(s) and high grade aluminium housing to transfer heat away from the LEDs and dissipate through the 'finned' housing for cooling. FACTOR & FACTOR Small have been specifically designed for side entry mounting suitable for 42mm side entry. Option of 60mm version is available with code .SE60.

Holophane Denver Elite Wall

Two-piece die-cast aluminium housing, that conforms to EN1706 AC-46500, with integral heat sink fins to optimise thermal management through conductive cooling. 1 or 2 ×10 LED modules are IP65 with individual lenses. The high grade aluminium housing transfers heat away from the LEDs and dissipates heat through the finned housing for cooling. The LED driver is mounted separately from the LED



modules to promote low operating temperature and long system life. Housing is completely sealed against moisture and environmental contaminants (IP65). Luminaire is suitable for wall mounting only. Installation via the rear-housing with cable entry via rear, top, bottom or sides.

3.3 Mounting heights

The floodlights are mounted at 8m on units and columns and the bulkheads are mounted at 2.5m on the building perimeter.

3.4 Calculation Results

The table below details a summary of the results obtained for the development.

Average Lighting Levels		
		Lux Level
Access Road		22
Service Yard 1,2,3		25
Service Yard 4,5,6,7		24
Perimeter		12

All results are in line with the recommendations detailed elsewhere in this report.

The following table provides a summary of the obtrusive light calculations carried out in the Dialux calculation software.

Obtrusive Light				
ULR (Sky Glow)			0.5%	
Maximum calculated vertical spill light		Minimum lux	Average Lux	Maximum Lux
Housing 1		0.09	0.2	0.4
Housing 2		0.03	0.11	0.29

The ULR (sky Glow) calculation is within the requirements of table 6 of the guidance notes for Environmental one E3 (5%).

The vertical spill lighting calculations at all boundaries are below the requirements of the pre-curfew levels for environmental Zone E3 (10 lux). The maximum vertical illuminance is also within the post curfew illuminance levels for environmental zone E3 (2 lux).

Table 4 details the requirements for luminance intensity of bright luminaires. As the building is shielding the dwellings from the main lighting to the service yard no lighting intensity calculations have been undertaken as there will be no glare.

4.0 Conclusions

The proposed lighting scheme provides the lighting levels in accordance with the British Standards.

The overspill levels are reduced by the use of directionally controlled flat glass fittings. The lights are left flat to maintain a 0% upward light ratio. Tilting the light fittings will cause glare issues from the surrounding areas.

The lighting calculations demonstrate the vertical spill levels to the residential areas are within the requirements of the guidance notes.

The Upward light ratio achieves the requirements with the use of flat glass light fittings.

We therefore believe the scheme provides a good quality lighting scheme for the development, to provide adequate lighting levels for operational needs and reduces the obtrusive light to the surrounding areas.

5.0 DIALUX OUTPUT CALCULATIONS

Dysons Road, Edmunton

Partner for Contact:
Order No.:
Company:
Customer No.:

Date: 19.07.2021
Operator:



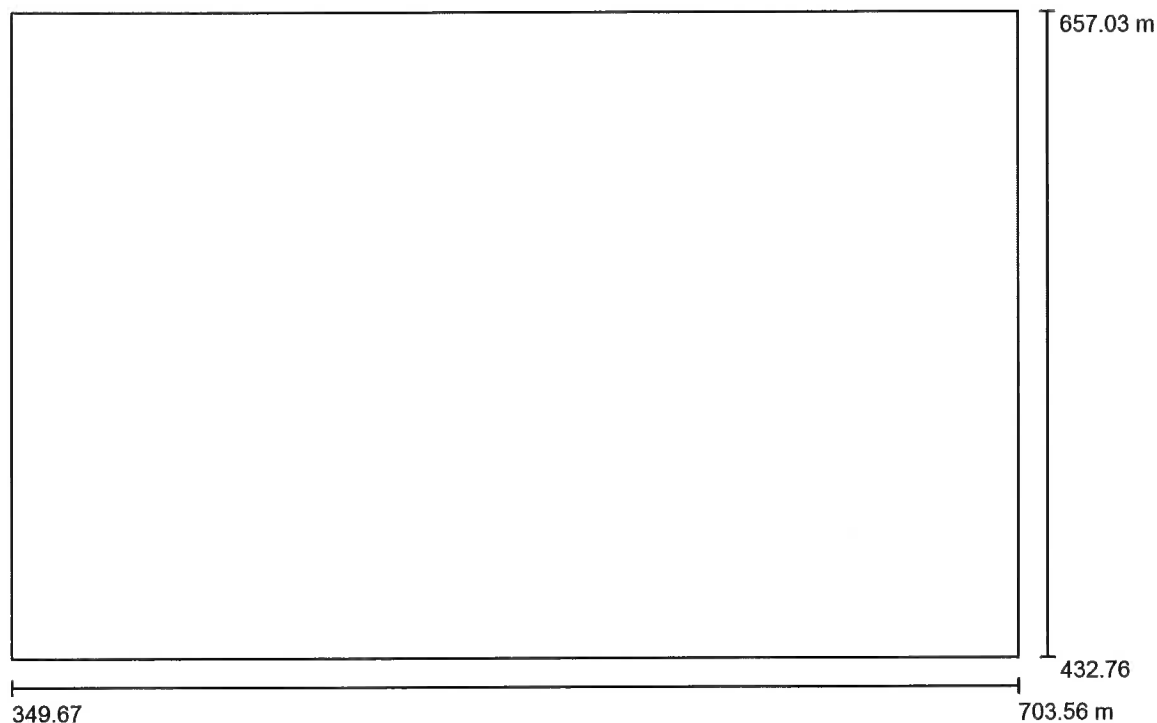
Operator
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Fax
e-Mail

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Exterior Scene 1 / Planning data



Maintenance factor: 0.80, ULR (Upward Light Ratio): 0.5%

Scale 1:2531

Luminaire Parts List

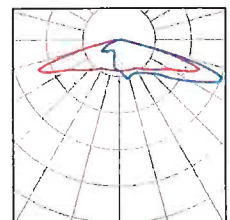
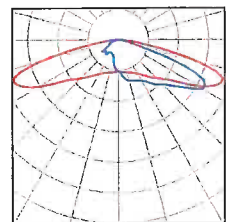
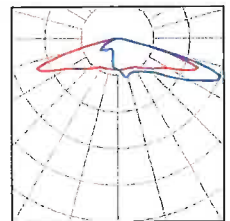
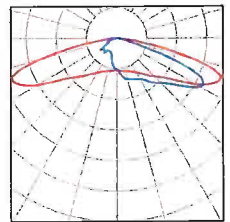
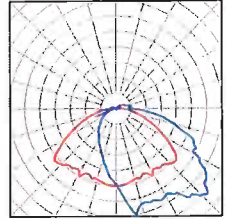
No.	Pieces	Designation (Correction Factor)	Φ (Luminaire) [lm]	Φ (Lamps) [lm]	P [W]
1	22	Holophane Europe Ltd DEW.LA014.NR.PGL Denver Elite Wall (1.000)	1075	1075	12.0
2	2	Holophane Europe Ltd DSX1.2.LA114.AY D-Series 1 Luminaire (1.000)	11263	11264	105.0
3	2	Holophane Europe Ltd DSX1.2.LA114.FW D-Series 1 Luminaire (1.000)	11415	11416	105.0
4	1	Holophane Europe Ltd DSX1.2.LA224.AY D-Series 1 Luminaire (1.000)	21909	21910	208.0
5	2	Holophane Europe Ltd DSX1.2.LA224.FW D-Series 1 Luminaire (1.000)	22206	22207	208.0

Exterior Scene 1 / Planning data**Luminaire Parts List**

No.	Pieces	Designation (Correction Factor)	Φ (Luminaire) [lm]	Φ (Lamps) [lm]	P [W]
6	2	Holophane Europe Ltd FTS.2.LA074.NR FACTOR SMALL STREETLIGHT (1.000)	7086	7075	52.0
Total:			149500	149484	1412.0

Exterior Scene 1 / Luminaire parts list

22 Pieces	Holophane Europe Ltd DEW.LA014.NR.PGL Denver Elite Wall Article No.: DEW.LA014.NR.PGL Luminous flux (Luminaire): 1075 lm Luminous flux (Lamps): 1075 lm Luminaire Wattage: 12.0 W Luminaire classification according to CIE: 95 CIE flux code: 32 67 91 95 100 Fitting: 1 x LA014 (Correction Factor 1.000).	See our luminaire catalog for an image of the luminaire.
2 Pieces	Holophane Europe Ltd DSX1.2.LA114.AY D-Series 1 Luminaire Article No.: DSX1.2.LA114.AY Luminous flux (Luminaire): 11263 lm Luminous flux (Lamps): 11264 lm Luminaire Wattage: 105.0 W Luminaire classification according to CIE: 100 CIE flux code: 19 50 90 100 100 Fitting: 1 x LA114 (Correction Factor 1.000).	See our luminaire catalog for an image of the luminaire.
2 Pieces	Holophane Europe Ltd DSX1.2.LA114.FW D-Series 1 Luminaire Article No.: DSX1.2.LA114.FW Luminous flux (Luminaire): 11415 lm Luminous flux (Lamps): 11416 lm Luminaire Wattage: 105.0 W Luminaire classification according to CIE: 100 CIE flux code: 20 47 89 100 100 Fitting: 1 x LA114 (Correction Factor 1.000).	See our luminaire catalog for an image of the luminaire.
1 Pieces	Holophane Europe Ltd DSX1.2.LA224.AY D-Series 1 Luminaire Article No.: DSX1.2.LA224.AY Luminous flux (Luminaire): 21909 lm Luminous flux (Lamps): 21910 lm Luminaire Wattage: 208.0 W Luminaire classification according to CIE: 100 CIE flux code: 19 50 90 100 100 Fitting: 1 x LA224 (Correction Factor 1.000).	See our luminaire catalog for an image of the luminaire.
2 Pieces	Holophane Europe Ltd DSX1.2.LA224.FW D-Series 1 Luminaire Article No.: DSX1.2.LA224.FW Luminous flux (Luminaire): 22206 lm Luminous flux (Lamps): 22207 lm Luminaire Wattage: 208.0 W Luminaire classification according to CIE: 100 CIE flux code: 20 47 89 100 100 Fitting: 1 x LA224 (Correction Factor 1.000).	See our luminaire catalog for an image of the luminaire.





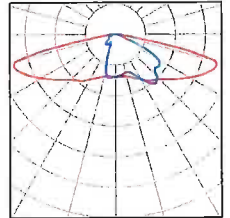
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Exterior Scene 1 / Luminaire parts list

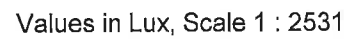
2 Pieces

Holophane Europe Ltd FTS.2.LA074.NR FACTOR
SMALL STREETLIGHT
Article No.: FTS.2.LA074.NR
Luminous flux (Luminaire): 7086 lm
Luminous flux (Lamps): 7075 lm
Luminaire Wattage: 52.0 W
Luminaire classification according to CIE: 100
CIE flux code: 30 62 91 100 100
Fitting: 1 x LA074 (Correction Factor 1.000).

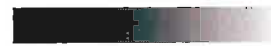
See our luminaire catalog
for an image of the
luminaire.



Exterior Scene 1 / Ground Element 1 / Surface 1 / Isolines (E)

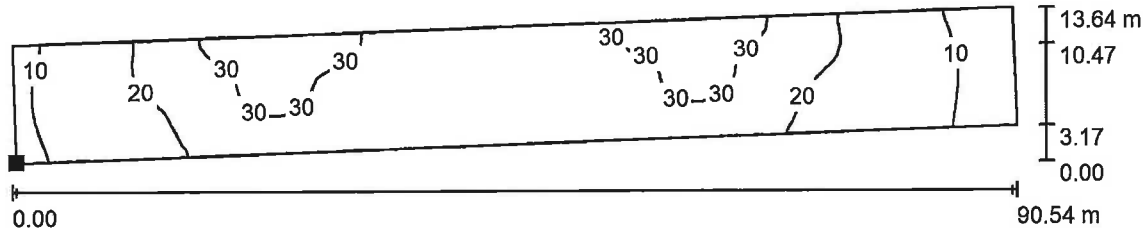


$E_{av} [lx]$	$E_{min} [lx]$	$E_{max} [lx]$	$u0$	E_{min} / E_{max}
1.27	0.00	52	0.000	0.000



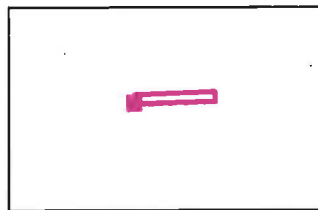
Operator
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Exterior Scene 1 / Access Road / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 648

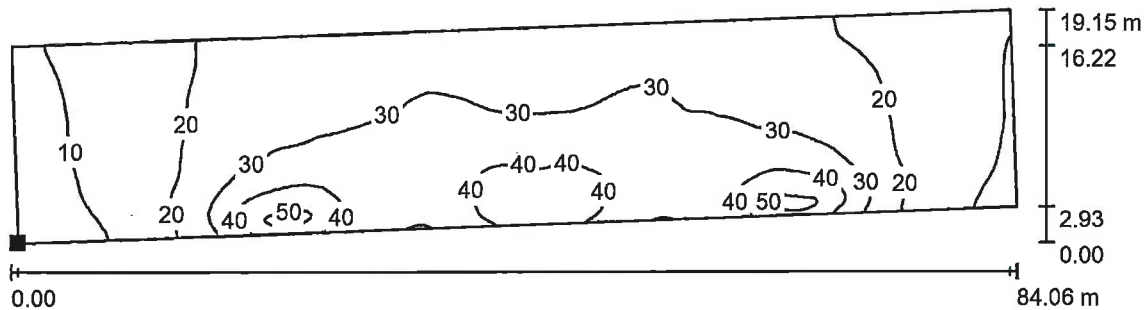
Position of surface in external scene:
Marked point:
(491.564 m, 550.400 m, 0.000 m)



Grid: 128 x 32 Points

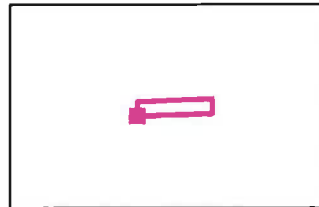
E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u_0	E_{min} / E_{max}
22	6.18	40	0.277	0.156

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Exterior Scene 1 / Service Yard 1,2,3 / Isolines (E, Perpendicular)

Values in Lux, Scale 1 : 601

Position of surface in external scene:
Marked point:
(492.652 m, 533.982 m, 0.000 m)



Grid: 128 x 64 Points

E_{av} [lx]
25

E_{min} [lx]
5.31

E_{max} [lx]
53

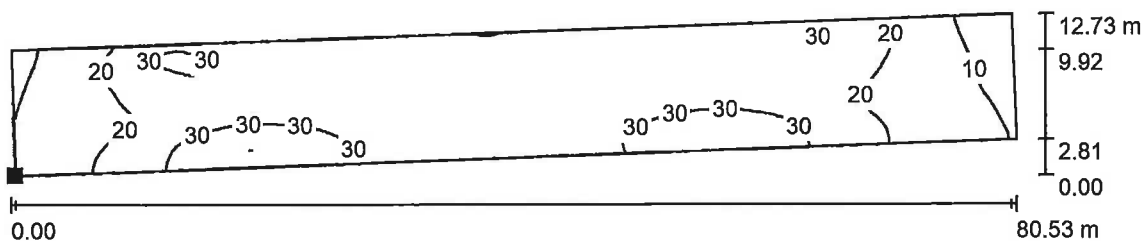
u_0
0.209

E_{min} / E_{max}
0.100



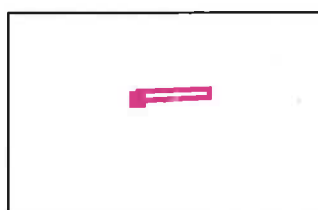
Operator
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Exterior Scene 1 / Service Yard 4,5,6,7 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 576

Position of surface in external scene:
Marked point:
(495.788 m, 560.433 m, 0.000 m)



Grid: 128 x 64 Points

E_{av} [lx]
24

E_{min} [lx]
6.43

E_{max} [lx]
40

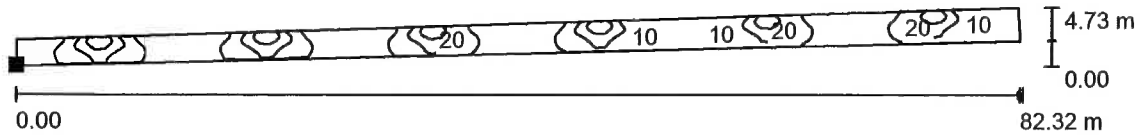
$u0$
0.268

E_{min} / E_{max}
0.160



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Exterior Scene 1 / Rear Escape Route Sample / Isolines (E, Perpendicular)

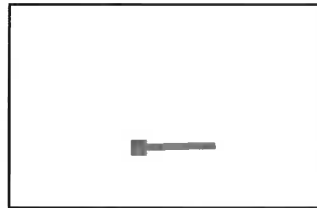


Values in Lux, Scale 1 : 589

Position of surface in external scene:

Marked point:

(496.640 m, 498.333 m, 0.000 m)



Grid: 16 x 128 Points

E_{av} [lx]
12

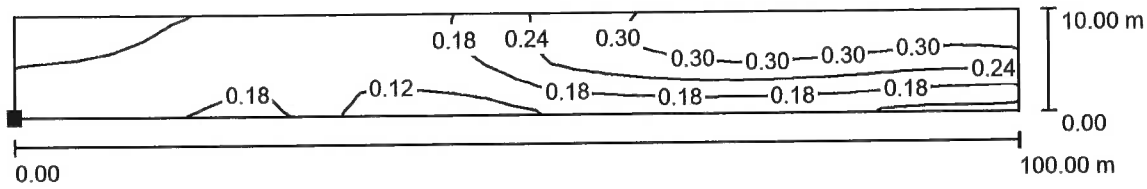
E_{min} [lx]
0.93

E_{max} [lx]
45

$u0$
0.080

E_{min} / E_{max}
0.021

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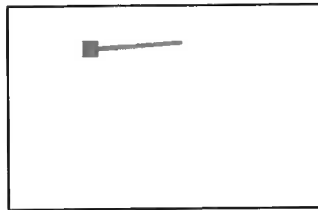
Exterior Scene 1 / Vertical on Housing 1 / Isolines (E, Perpendicular)

Values in Lux, Scale 1 : 715

Position of surface in external scene:

Marked point:

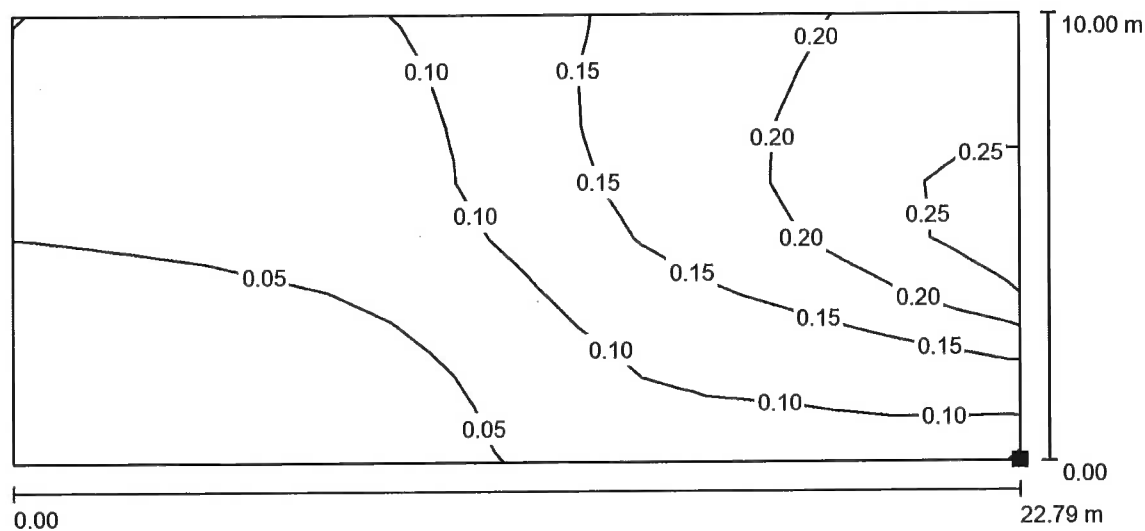
(443.429 m, 609.141 m, 0.000 m)



Grid: 32 x 4 Points

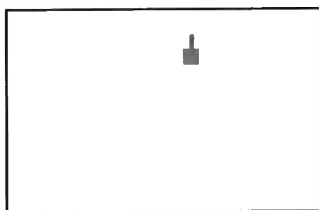
 E_{av} [lx]
0.20 E_{min} [lx]
0.09 E_{max} [lx]
0.40 u_0
0.451 E_{min} / E_{max}
0.228

Exterior Scene 1 / Vertical on Housing 2 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 163

Position of surface in external scene:
Marked point:
(557.618 m, 604.065 m, 0.000 m)



Grid: 8 x 16 Points

E_{av} [lx]
0.11

E_{min} [lx]
0.03

E_{max} [lx]
0.29

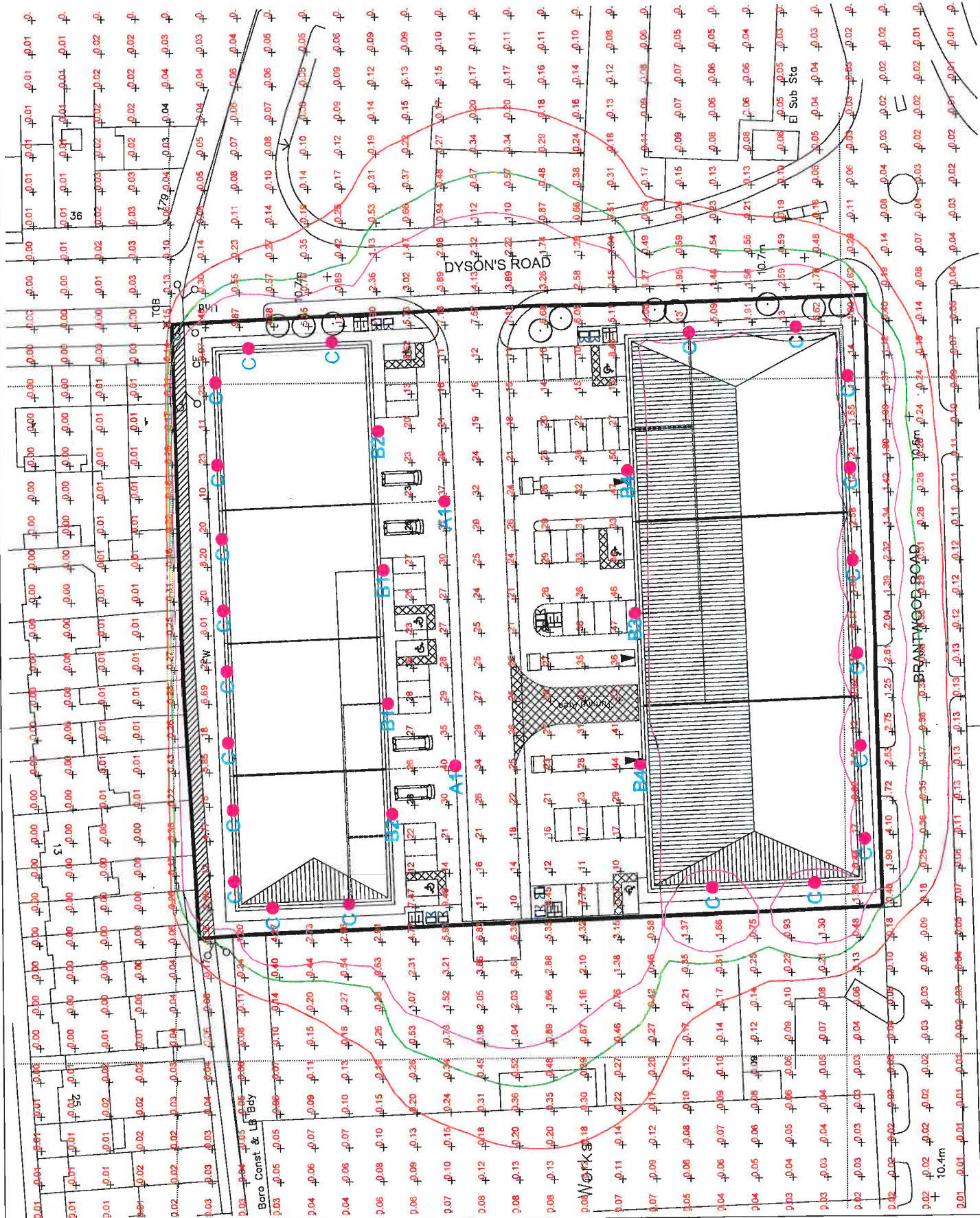
u_0
0.247

E_{min} / E_{max}
0.096

THIS SPREADSHEET IS A DESIGN TOOL. IT IS NOT A CONTRACT DOCUMENT. IT IS NOT A SUBSTITUTE FOR A PROFESSIONAL DESIGN. IT IS NOT A SUBSTITUTE FOR A PROFESSIONAL DESIGN. IT IS NOT A SUBSTITUTE FOR A PROFESSIONAL DESIGN.

LEGEND

- A1** ● HOLOPHANE FACTOR SMALL STREET LIGHT 7,288 LUMENS, 3000K
- B1** ● HOLOPHANE D-SERIES ASYMMETRIC DISTRIBUTION 11,264 LUMENS, 3000K
- B2** ● HOLOPHANE D-SERIES FORWARD DISTRIBUTION 11,415 LUMENS, 3000K
- B3** ● HOLOPHANE D-SERIES ASYMMETRIC DISTRIBUTION 21,569 LUMENS, 3000K
- B4** ● HOLOPHANE D-SERIES FORWARD DISTRIBUTION 22,206 LUMENS, 3000K
- C** ● HOLOPHANE DENVER ELITE NARROW DISTRIBUTION 1,075 LUMENS, 3000K



REV	DESCRIPTION	DATE
000000		
 32 Ludgate Hill Birmingham B3 1EH T: 0121 233 4723 info@halligan.com www.halligan.com		
CLIENT	GRAFTONGATE	
PROJECT	DYSONS ROAD EDMUNTON	
TITLE	EXTERNAL LIGHTING OVERSPILL PLOT	
DATE	JULY 2021	DRAWN BY ASC
SCALE	NTS	AW
	A1	
	B3526/EXT/100	
		REVISION
		-



HOLOPHANE

AcuityBrands
Expanding the boundaries of lighting™



FACTOR[™]
FACTOR[™]
SMALL

factor[™] & **factor**[™] small

FACTORTM

FACTORTM

SMALL



Optical Performance
Heat Management
Long System Life
Reduced Maintenance





FACTOR™ and **FACTOR™ Small** from Holophane, are dedicated LED luminaires that deliver a variety of efficient lumen per watt packages with excellent optical performance. With their precision engineered optics and sleek body design - perfect for dissipating heat away from the LEDs and extending the luminaire life, FACTOR & FACTOR Small give the complete cost saving solution for street lighting environments. With a range of delivered lumen packages equivalent from 35W to 150W ceramic metal halide lamps, FACTOR & FACTOR Small deliver efficient sustainable lighting solutions that have the flexibility to meet today's and tomorrow's lighting requirements.

FACTOR & FACTOR Small's design ensures cool operation that keeps it running for the long haul.

optics / light source

- > Lumen package of between 2,000 - 25,000 lumens
- > Three lighting distribution options

applications

- > S-Class, ME-Class, Pedestrian Areas, Residential Areas and Car Parks

approvals

- Complies with EN60598
- CE
- IP65 light engines
- TA: Rated for -40°C to 40°C

For further information please visit the Holophane website
www.holophane.co.uk

Typical Luminaire Performance

Configuration	Delivered Lumens	Power Consumption	Drive Current	Rated Life of LED Module (L70B50 @Tq 15°C)*
FACTOR				
FTR.LA144	c. 14000	97W	525mA	100,000+ hrs
FTR.LA174	c. 17000	130W	700mA	100,000+ hrs
FTR.LA254	c. 25000	208W	1050mA	100,000+ hrs
FACTOR Small				
FTS.2.LA02X	c. 2000	17W	525mA	100,000+ hrs
FTS.2.LA03X	c. 3000	23W	700mA	100,000+ hrs
FTS.3.LA05X	c. 5000	35W	525mA	100,000+ hrs
FTS.3.LA06X	c. 6000	47W	700mA	100,000+ hrs
FTS.3.LA09X	c. 9000	66W	1050mA	100,000+ hrs
FTS.3.LA10X	c. 10,000	78W	1225mA	100,000+ hrs
FTS.2.LA07X	c. 7000	52W	525mA	100,000+ hrs
FTS.2.LA084	c. 8000	70W	700mA	100,000+ hrs
FTS.3.LA11X	c. 11000	82W	850mA	100,000+ hrs
FTS.2.LA12X	c. 12000	100W	1050mA	100,000+ hrs

Note: Data is correct at time of print.

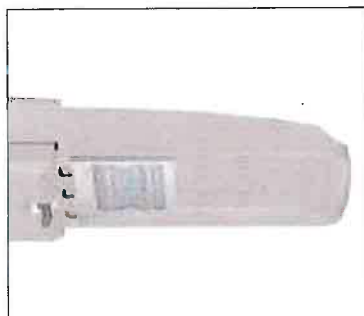
* For other life metric data in line with IEC PAS62722-2-1 and 62717 contact your Holophane Representative for details.



Two sizes to deliver a variety of lumen packages



Tool less trigger latch entry



10 LED Board – LA024 & LA034 versions



External fins to dissipate heat

specification

The 'finned' luminaire body, designed to dissipate heat, is manufactured from high pressure die cast aluminium that conforms to EN1706 AC-46500. A die cast aluminium door with tool less trigger latch allows access to the gear compartment concealing the IP65 control gear and connectors. The IP65 LED optical modules, with individual lenses, are mounted directly to the cast aluminium housing and wired in series. A thermal transfer interface is sandwiched between the LED module(s) and high grade aluminium housing to transfer heat away from the LEDs and dissipate through the 'finned' housing for cooling. FACTOR & FACTOR Small have been specifically designed for side entry mounting suitable for 42mm side entry. Option of 60mm version is available with code .SE60.

features and benefits

Sleek Design with tool-less access

- > FACTOR & FACTOR Small's diecast aluminium housing acts as its primary heat sink. Its longitudinal fins employ conductive cooling techniques to dissipate heat away from the key LED components and extend luminaire life.
- > A die-cast trigger latch allows easy tool less access into the luminaire during installation and maintenance visits.

Exceptional Performance

- > Offering four lumen packages ranging from 2,000lm to 25,000lm with efficiencies of up to 139 lpw (Lumens Per Watts).
- > Two optimised roadway distributions (asymmetric, forward throw and long & narrow) delivered by quality LEDs and bespoke UV stabilised optics
- > LED light engines with 0% ULOR ensuring night time friendly.

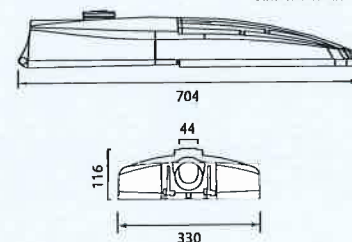
Fully Maintainable Performance

- > Single tool-less latch access to the luminaire ensures straightforward entry to the luminaire at installation and maintenance.
- > Unique IP65 rated LED light engines that are interchangeable ensuring a futureproof and maintainable LED luminaire.

Factor (FTR)

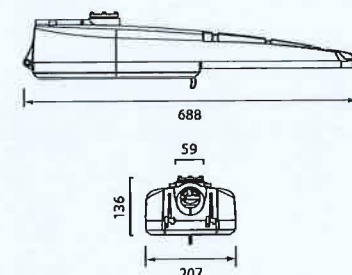


dimensions in mm



Factor is suitable for 42mm side entry as standard. The option of 60mm side entry is available with option code .SE60.

Factor Small (FTS)



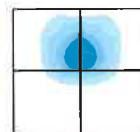
Factor Small is suitable for 42mm side entry as standard. The option of 34mm or 60mm side entry is available with option codes .SE34 or .SE60.

light distribution

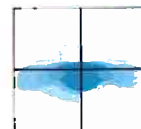
Asymmetric



Forward Throw



Long & Narrow



weight

Factor	12.0 kg
Factor Small	7.0 kg

windage (effective projected area)

Factor	0.084 m²
Factor Small	0.071 m²

Note: The specifications of the Holophone luminaire and columns represents typical values. All descriptions, illustrations, drawings and specifications in the Holophone catalogue and website represent only general particulars of the goods to which they apply and shall not form part of any contract. The company reserves the right to change specifications at its discretion without prior notification or public announcement.

Factor (FTR)



Typical spacing
36m spacing mounted at 6m

typical spacing

- > Designed to S4, BSEN13201 P2, 2003
- > 6m mounting height, 2 lanes, 10m road width with 2m setback.
- > Achieving 36m max spacing with 0.22 uniformity.

Factor Small (FTS)



Typical spacing
32m spacing mounted at 6m

typical spacing

- > Designed to S4, BSEN13201 P2, 2003
- > 6m mounting height, 2 lanes, 10m road width with 2m setback.
- > Achieving 32m max spacing with 0.25 uniformity.



ordering details : luminaire

Code	Factor Luminaire
FTR	
Code	Lamp Type (required)
.LA144	LED light engine producing c.14,000 lm with a nominal 4000°K colour temperature
.LA174	LED light engine producing c.17,000 lm with a nominal 4000°K colour temperature
.LA254	LED light engine producing c.25,000 lm with a nominal 4000°K colour temperature
Code	Light Distribution (required)
.SY	Symmetrical
.AY	Asymmetric
.FW	Forward Throw
.NR	Long and Narrow
Code	Colour (required)
.C1	White (RAL9016)
.C4	Graphite (RAL7011)
.C6	Grey (RAL7035)
.C7	Black (RAL9005)
.C9	Metallic Silver (RAL9006)
.RAL****	(customer choice)
Code	Options
.T1	Complete with NEMA socket. (To accept standard NEMA Photocell, available from Holophane)
.TSZ	Complete with miniature 70 lux factory fitted photocell. (Zodion SS12)
.TSZA	Complete with miniature 55 lux factory fitted photocell. (Zodion SS12A)
.TSZB	Complete with miniature 35 lux factory fitted photocell. (Zodion SS12B)
.T5	Complete with 5-pin dimming NEMA ANSI C136.41 socket (suitable photocell/node supplied by others) without locking top
.T7	Complete with 7-pin dimming NEMA ANSI C136.41 socket (suitable photocell/node supplied by others) without locking top
.T5T	Complete with 5-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) with weather proof locking top
.T7T	Complete with 7-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) with weather proof locking top
Code	Fixing Method (optional)
.SE60	60mm side entry mounting
Code	Control Gear (optional)
.CL7	Programmed to deliver 70% of the initial lumens over the life of the luminaire
.CL8	Programmed to deliver 80% of the initial lumens over the life of the luminaire
.CL9	Programmed to deliver 90% of the initial lumens over the life of the luminaire
.D2	DALI HF electronic control gear
Code	Dimming Outputs (optional)
.LRT56	pre-set to dim to 50% between 12am to 6am
.LRT66	pre-set to dim to 60% between 12am to 6am
.LRT76	pre-set to dim to 70% between 12am to 6am
Code	Cable Entry (optional) max length catered for
.FF10S	10 metres of 1.5mm ² 3 core cable "flex" for side entry mounting
.FS10S	10 metres of flat twin & earth 2.5mm ² for side entry mounting
.F510S	10 metres of 1.5mm ² 5 core cable "flex" for side entry mounting

Example FTR .LA144 .AY .C1 .TSZ .SE60 .CL7 .LRT56 .FF10S

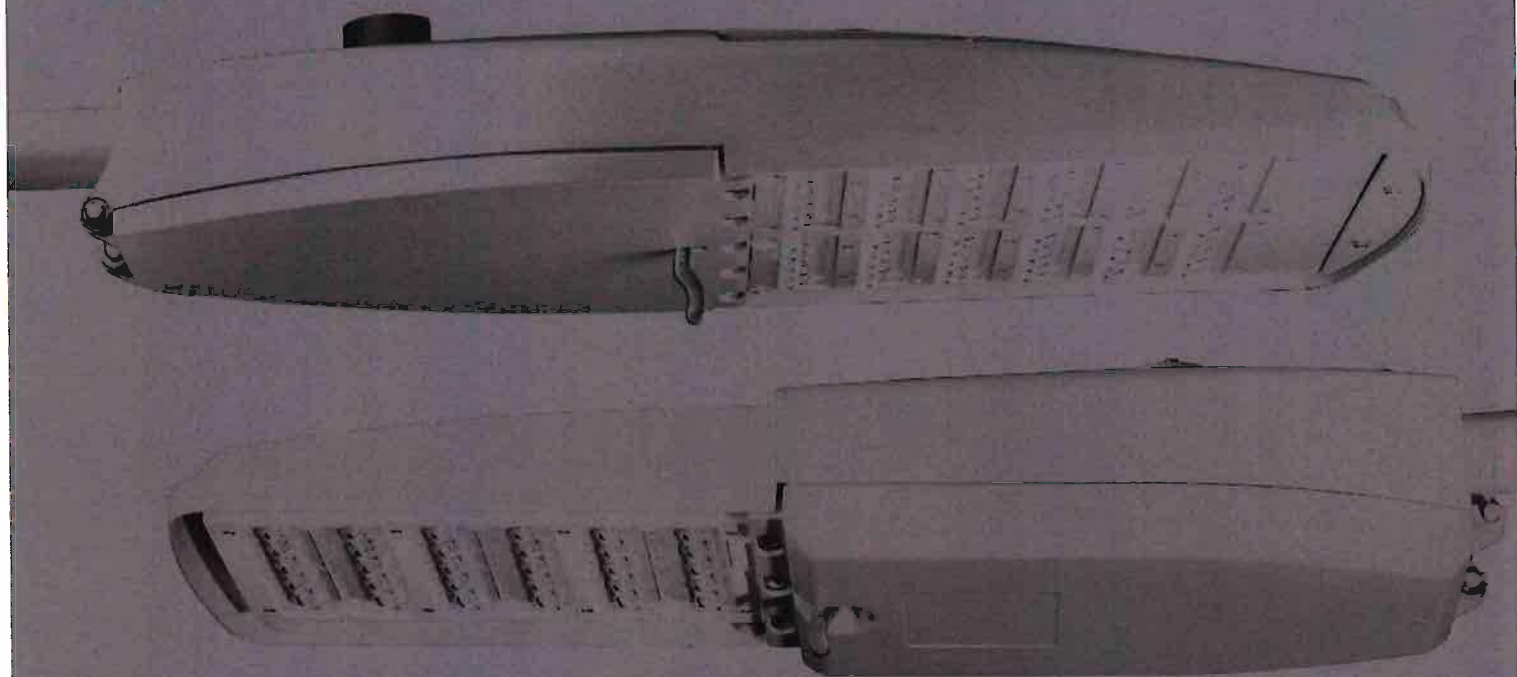
Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturers data) and luminaire power of +/- 5%.

Code	Factor Small						
FTS							
	Code	Prefix (optional)					
	.2	Series 2					
	.3	Series 3					
	Code	Lamp Type (required)					
	.LA024	LED light engine producing c.2,000 lm with a nominal 4000K colour temperature					
	.LA034	LED light engine producing c.3,000 lm with a nominal 4000K colour temperature					
	.LA054	LED light engine producing c.5,000 lm with a nominal 4000K colour temperature*					
	.LA064	LED light engine producing c.6,000 lm with a nominal 4000K colour temperature					
	.LA074	LED light engine producing c.7,000 lm with a nominal 4000K colour temperature					
	.LA084	LED light engine producing c.8,000 lm with a nominal 4000K colour temperature					
	.LA094	LED light engine producing c.9,000 lm with a nominal 4000K colour temperature					
	.LA104	LED light engine producing c.10,000 lm with a nominal 4000K colour temperature*					
	.LA114	LED light engine producing c.11,000 lm with a nominal 4000K colour temperature*					
	.LA124	LED light engine producing c.12,000 lm with a nominal 4000K colour temperature					
	.LA023	LED light engine producing c.2,000 lm with a nominal 3000K colour temperature					
	.LA033	LED light engine producing c.3,000 lm with a nominal 3000K colour temperature					
	.LA053	LED light engine producing c.5,000 lm with a nominal 3000K colour temperature*					
	.LA063	LED light engine producing c.6,000 lm with a nominal 3000K colour temperature					
	.LA073	LED light engine producing c.7,000 lm with a nominal 3000K colour temperature					
	.LA083	LED light engine producing c.8,000 lm with a nominal 3000K colour temperature					
	.LA093	LED light engine producing c.9,000 lm with a nominal 3000K colour temperature					
	.LA103	LED light engine producing c.10,000 lm with a nominal 3000K colour temperature*					
	.LA113	LED light engine producing c.11,000 lm with a nominal 3000K colour temperature*					
	.LA123	LED light engine producing c.12,000 lm with a nominal 3000K colour temperature					
	Code	Light Distribution (required)					
	.SY	Symmetrical					
	.AY	Asymmetric					
	.FW	Forward Throw					
	.NR	Long and Narrow					
	Code	Colour (required)					
	.C1	Smooth White (RAL9016)					
	.C4	Graphite (RAL7011)					
	.C6	Grey (RAL7035)					
	.C7	Black (RAL9005)					
	.C9	Metallic Silver (RAL9006)					
	.RAL****	(customer choice)					
	Code	Options					
	.T1	Complete with NEMA socket. (To accept standard NEMA Photocell, available from Holophane)					
	.TSZ	Complete with miniature 70 lux factory fitted photocell. (Zodion SS12)					
	.TSZA	Complete with miniature 55 lux factory fitted photocell. (Zodion SS12A)					
	.TSZB	Complete with miniature 35 lux factory fitted photocell. (Zodion SS12B)					
	.T5	Complete with 5-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) without locking top					
	.T7	Complete with 7-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) without locking top					
	.T5T	Complete with 5-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) with weather proof locking top					
	.T7T	Complete with 7-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) with weather proof locking top					
	Code	Fixing Method (optional)					
	.SE60	60mm side entry mounting					
	.SE34	34mm side entry mounting					
	Code	Control Gear (optional)					
	.CL7	Programmed to deliver 70% of the initial lumens over the life of the luminaire					
	.CL8	Programmed to deliver 80% of the initial lumens over the life of the luminaire					
	.CL9	Programmed to deliver 90% of the initial lumens over the life of the luminaire					
	.D2	DALI HF electronic control gear					
	Code	Dimming Outputs (optional)					
	.LRT56	pre-set to dim to 50% between 12am to 6am					
	.LRT66	pre-set to dim to 60% between 12am to 6am					
	.LRT76	pre-set to dim to 70% between 12am to 6am					
	Code	Cable Entry (optional) max length catered for					
	.FF10S	10 metres of 1.5mm ² 3 core cable "flex" for side entry mounting					
	.FS10S	10 metres of flat twin & earth 2.5mm ² for side entry mounting					
	.F510S	10 metres of 1.5mm ² 5 core cable "flex" for side entry mounting					

Example FTS .2.LA024 .AY .C1 .T1 .SE60 .CL7 .LRT56 .FF10S

Note: Factor and Factor Small are offered with 42mm side entry as standard. * Only available with Series 3 (.3)

Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturers data) and luminaire power of +/- 5%.



FACTOR™

FACTOR™

SMALL

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HOLOPHANE

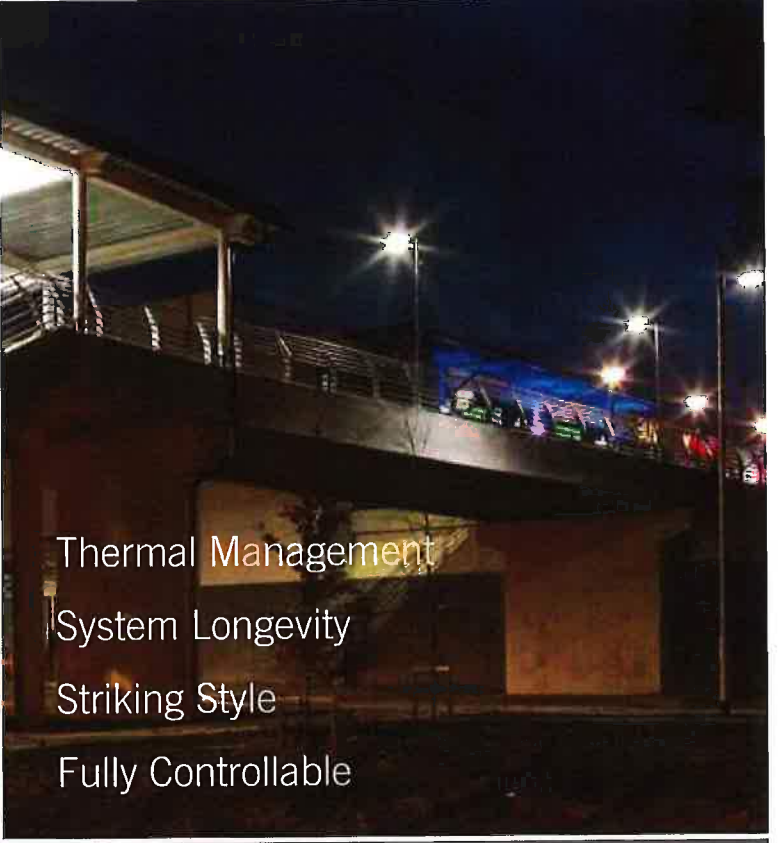
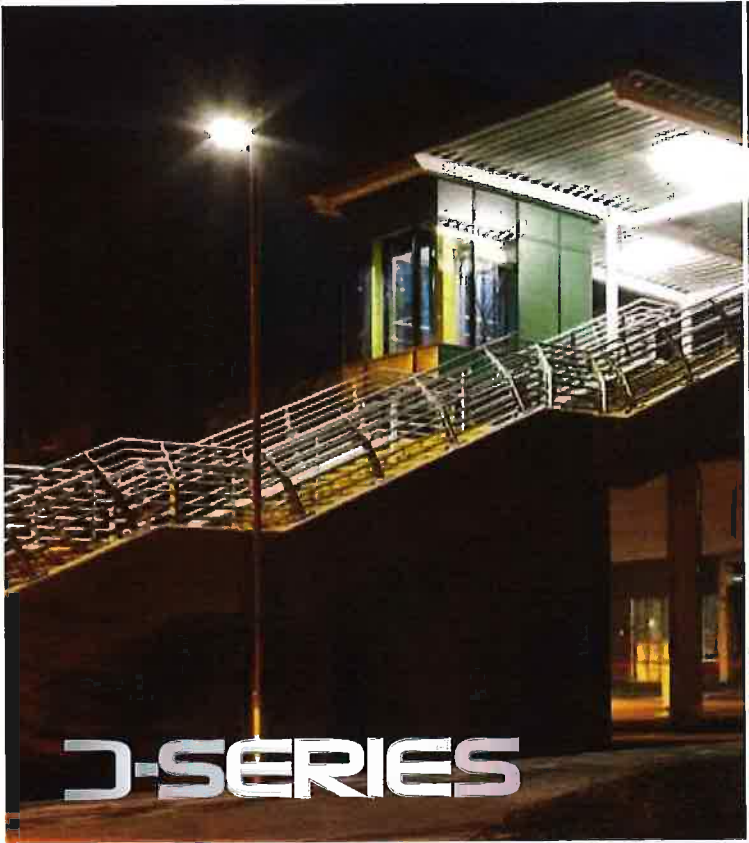
AcuityBrands
Expanding the boundaries of lighting™



D-SERIES

D-Series

LED

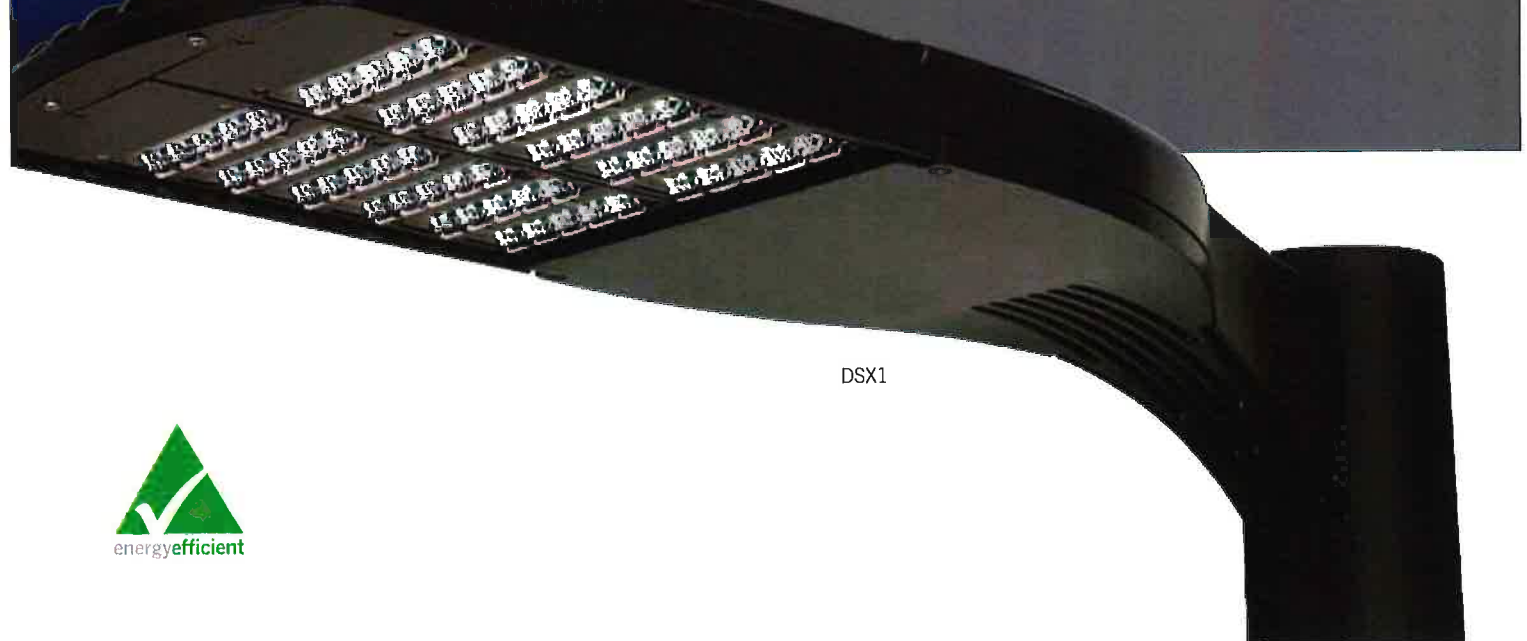


D-SERIES

Thermal Management
System Longevity
Striking Style
Fully Controllable



DSX2



DSX1



energyefficient



The modern styling of the **D-Series** is striking yet unobtrusive - making a bold, progressive statement as it blends seamlessly with its environment. **D-Series** takes all the benefits of LED technology and moulds it into a high performance, high efficacy and long life area lighting luminaire.

With its exceptional 'finned' thermal management system, D-Series is capable of delivering over 100,000 hours LED module life. Offering a wide range of lumen packages and optical distributions, D-Series delivers optimised lighting application designs.

With the integrated DALI option D-Series delivers a controllable luminaire that helps you realise energy consumption goals and demonstrate environmental responsibility. With its unique optics placed below each LED it ensures light is delivered where it needs to be, providing a uniform Nighttime Friendly environment with minimal light pollution.

optics / light source

- > 30, 60, 80 & 100 LED options available.
- > Fully soak tested light engines ensuring LED reliability and eliminating early failures.
- > 4000K/3000K colour temperature.**
- > RA 70.
- > Eight lumen packages available (5,000, 6,000, 8,000, 11,000, 16,000, 22,000, 30,000 & 36,000).

approvals

Complies with EN60598

CE

IP IP65 luminaire* and LED optic

Ta -40°C to +40°C

* .TLS option is IP43 rated with IP65 LED optics

For further information please visit the Holophane website
www.holophane.co.uk



Typical Luminaire Performance

Configuration	Delivered Lumens	Power Consumption	Drive Current	Rated Life of LED Module (L70B50 @Tq 20°C)*
DSX1.LA05X	c. 5000	36W	350mA	100,000+ hrs
DSX1.LA06X	c. 7000	52W	525mA	100,000+ hrs
DSX1.LA08X	c. 8000	68W	700mA	100,000+ hrs
DSX1.LA11X	c. 12000	105W	1050mA	100,000+ hrs
DSX1.LA16X	c. 16000	131W	700mA	100,000+ hrs
DSX1.LA22X	c. 22000	208W	1050mA	100,000+ hrs
DSX1.LA30X	c.30000	286W	1400mA	100,000+ hrs
DSX2.LA304	c. 30000	282W	1050mA	100,000+ hrs
DSX2.LA364	c. 37000	328W	1000mA	100,000+ hrs

Note: Data is correct at time of print.

* For other life metric data in line with IEC PAS62722-2-1 and 62717 contact your Holophane Representative for details.

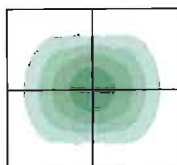
** 3000K only available for DSX1 (30 & 60 LED options)

specification

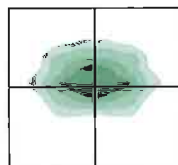
Single-piece die-cast aluminium housing, that conforms to EN1706 AC-46500, with integral heat sink fins to optimise thermal management through conductive cooling. LED modules are IP65 with individual lenses, and high grade aluminium housing to transfer heat away from the LEDs and dissipate through the finned housing for cooling. The LED driver is mounted in direct contact with the finned housing for cooling to promote low operating temperature and long system life. Housing is completely sealed against moisture and environmental contaminants (IP65). Installation is via the integrated mounting block and integral arm that facilitate a quick and easy installation.

light distribution

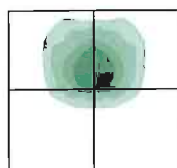
Symmetric



Asymmetric



Forward Throw



features and benefits

System Longevity

- > The D-Series's diecast aluminium housing acts as its primary heat sink. Its longitudinal fins employ conductive cooling techniques to dissipate heat away from the key LED components and driver that extends the life of the luminaire.
- > Light engine(s) consist of either 20 or 30 high efficacy LEDs (subject to chosen configuration) mounted to a metal-core circuit board to maximize heat dissipation and promote long life.

Exceptional Performance

- > Offering six lumen packages ranging from 5000 lm to 36,000 lm with efficiencies of up to 130 lpw (Lumens Per Watts).
- > Three optimised distributions (asymmetric, symmetric and forward throw) delivered by quality LEDs and bespoke UV stabilised optics.
- > LED light engines with 0% ULOR ensuring night time friendly.

Complete Light Package

- > Available with DALI compatible driver and photocell options enabling control compatability.
- > Fully integrated into Holophane standard column range.

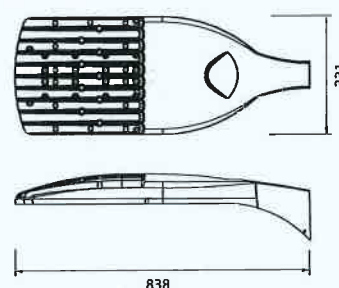
applications

Landscaped areas
Car parks
Amenity areas
Town squares
Retail parks
Entrance roads
Parks

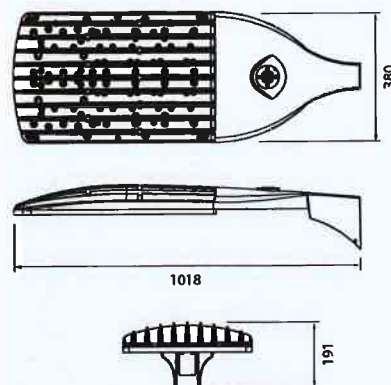


dimensions in mm

D-Series 1



D-Series 2



weight (with control gear)

DSX 1	12.2kg
DSX 2	15.0kg

windage (effective projected area)

DSX1	0.07m ²
DSX2	0.10m ²

TA

-40°C to 40°C

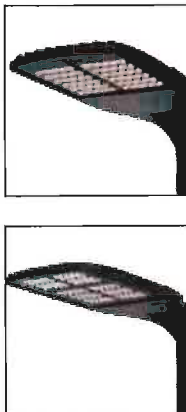




Level
7

Note: The specifications of the Helophane luminaire and columns represents typical values. All descriptions, illustrations, drawings and specifications in the Helophane catalogue and website represent only general particulars of the goods to which they apply and shall not form part of any contract. The company reserves the right to change specifications at its discretion without prior notification or public announcement.

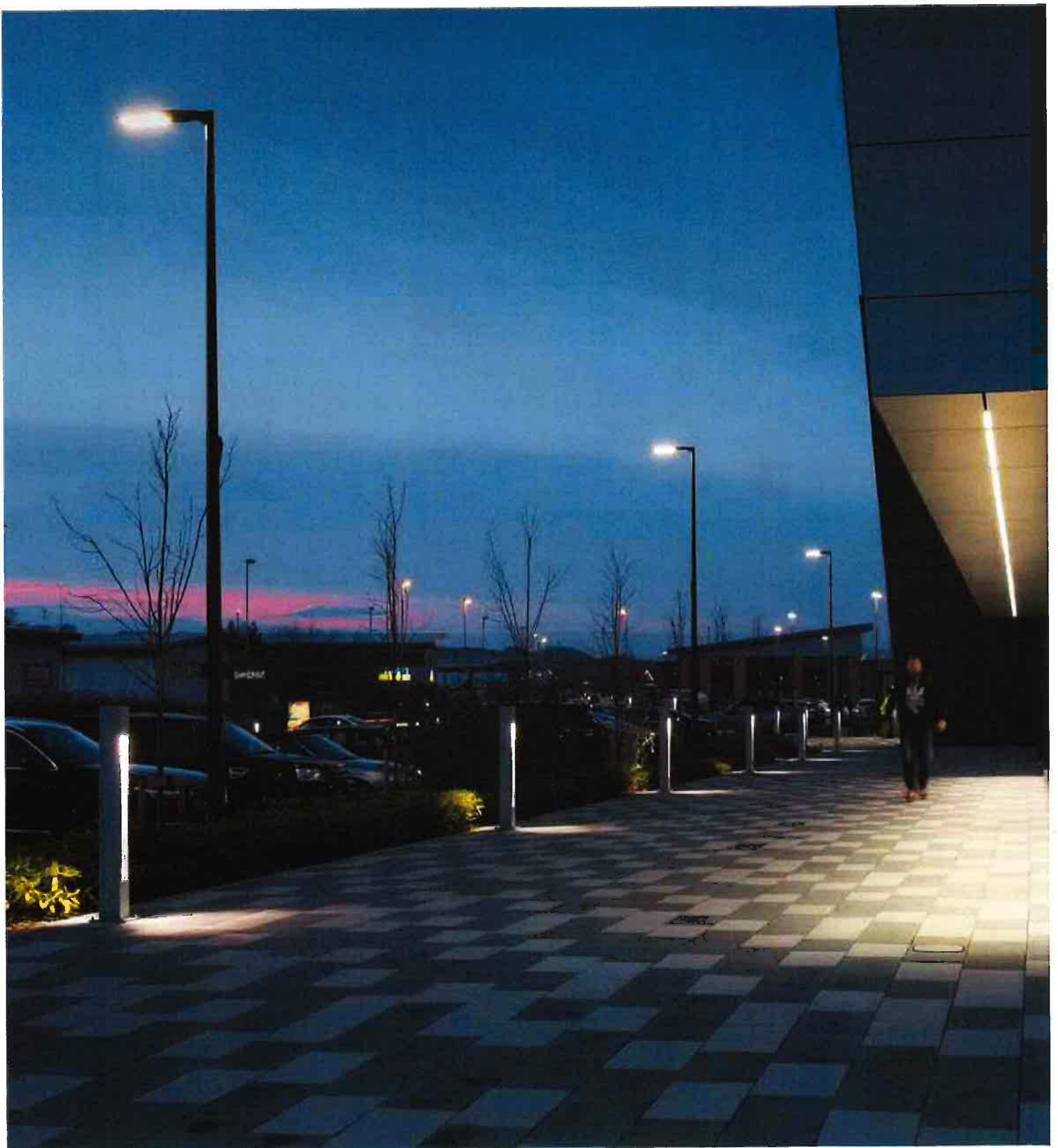
ordering details - luminaire

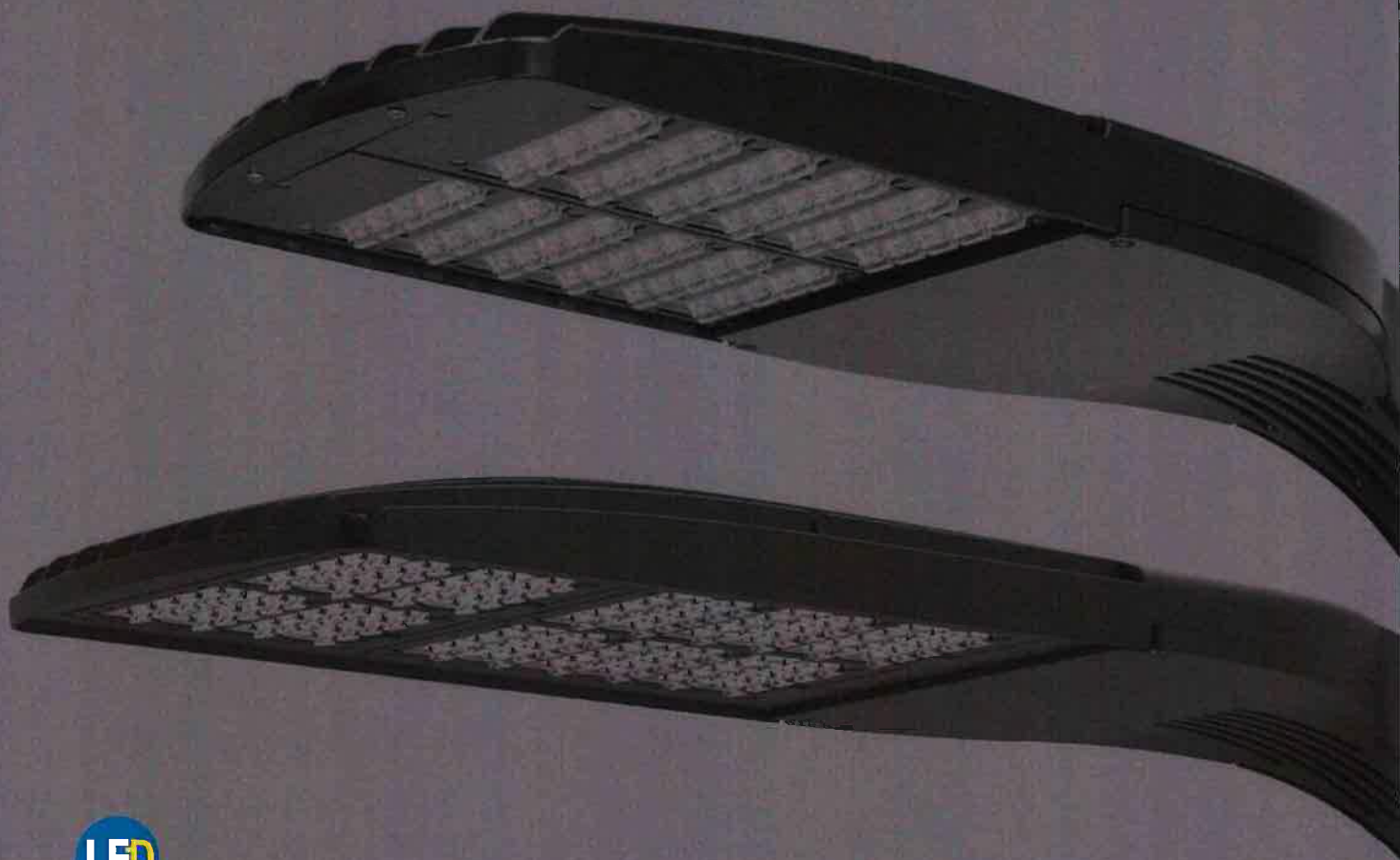
Code							
DSX1	D-Series 1 Luminaire						
DSX2	D-Series 2 Luminaire						
Code	Lamp Type (required)						
.LA05X*	LED light engine producing c 5,000 lumens					With a nominal 3000K or 4000K colour temperature. Replace X with 3 for 3000K or 4 for 4000K.	
.LA06X*	LED light engine producing c 6,000 lumens						
.LA08X*	LED light engine producing c 8,000 lumens						
.LA11X*	LED light engine producing c 11,000 lumens						
.LA16X*	LED light engine producing c 16,000 lumens						
.LA22X*	LED light engine producing c 22,000 lumens						
.LA30X*	LED light engine producing c 30,000 lumens						
.LA364**	LED light engine producing c 36,000 lumens						
Code	Light Distribution (required)						
.AY	Asymmetric						
.SY	Symmetric						
.FW	Forward throw						
Code	Colour (required)						
.C1	White RAL9016						
.C4	Graphite RAL7011						
.C6	Grey RAL7035						
.C7	Black RAL9005						
.C9	Metallic Silver RAL9006						
.RAL****	RAL Colour (customer choice)						
Code	Photocell (option)						
.T	Mini Photocell						
.T1	Complete with NEMA socket (To accept standard NEMA Photocell, available from Holophane)						
.T5	Complete with 5-pin dimming NEMA ANSI C136.41 socket (suitable photocell/node supplied by others) without locking top						
.T7	Complete with 7-pin dimming NEMA ANSI C136.41 socket (suitable photocell/node supplied by others) without locking top						
.T5T	Complete with 5-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) with weather proof locking top						
.T7T	Complete with 7-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) with weather proof locking top						
.TZ01	Complete with 4-Pin Zhaga Socket - Top (suitable photocell/node supplied by others) with weather proof locking top [†]						
.TZ02	Complete with 4-Pin Zhaga Socket – Bottom (suitable node/presence detector supplied by others) with weather proof locking top [†]						
Code	Control Gear (option)						
.CL7	Programmed to deliver 70% of the initial lumens over the life of the luminaire						
.CL8	Programmed to deliver 80% of the initial lumens over the life of the luminaire						
.CL9	Programmed to deliver 90% of the initial lumens over the life of the luminaire						
.D2	DALI HF electronic control gear						
Code	Dimming Outputs (option)						
.LRT56	Pre-set to dim to 50% between 12am to 6am						
.LRT66	Pre-set to dim to 60% between 12am to 6am						
.LRT76	Pre-set to dim to 70% between 12am to 6am						
Code	Paint Finish (option)						
.C	Enhanced Paint Finish						
DSX1	.LA224	.AY	.C7	.T1	.CL7	.LRT56	.C

Example DSX1 .LA224 .AY .C7 .T1 .CL7 .LRT56 .C

*DSX1 only **DSX2 only †Available with DSX1 & DSX2 ‡Not available with DSX1.LA30X § Not available with .D2

Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturers data) and luminaire power of +/- 5%.





D-SERIES

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HOLOPHANE

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Expanding the boundaries of lighting™



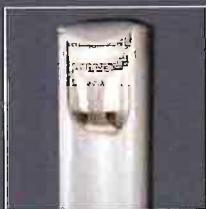
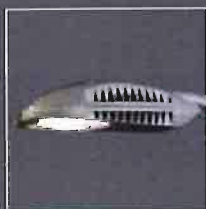
DENVER
elite system



wall



DENVER
elite system



denver™ elite wall

REGISTERED EUROPEAN DESIGN



DENVER™ elite system



The **Denver™ Elite Pole** exterior lighting luminaire joins the popular 'Denver™ Elite' family of lighting products. This family of products shares the same registered form to give designers flexibility in exterior lighting schemes.



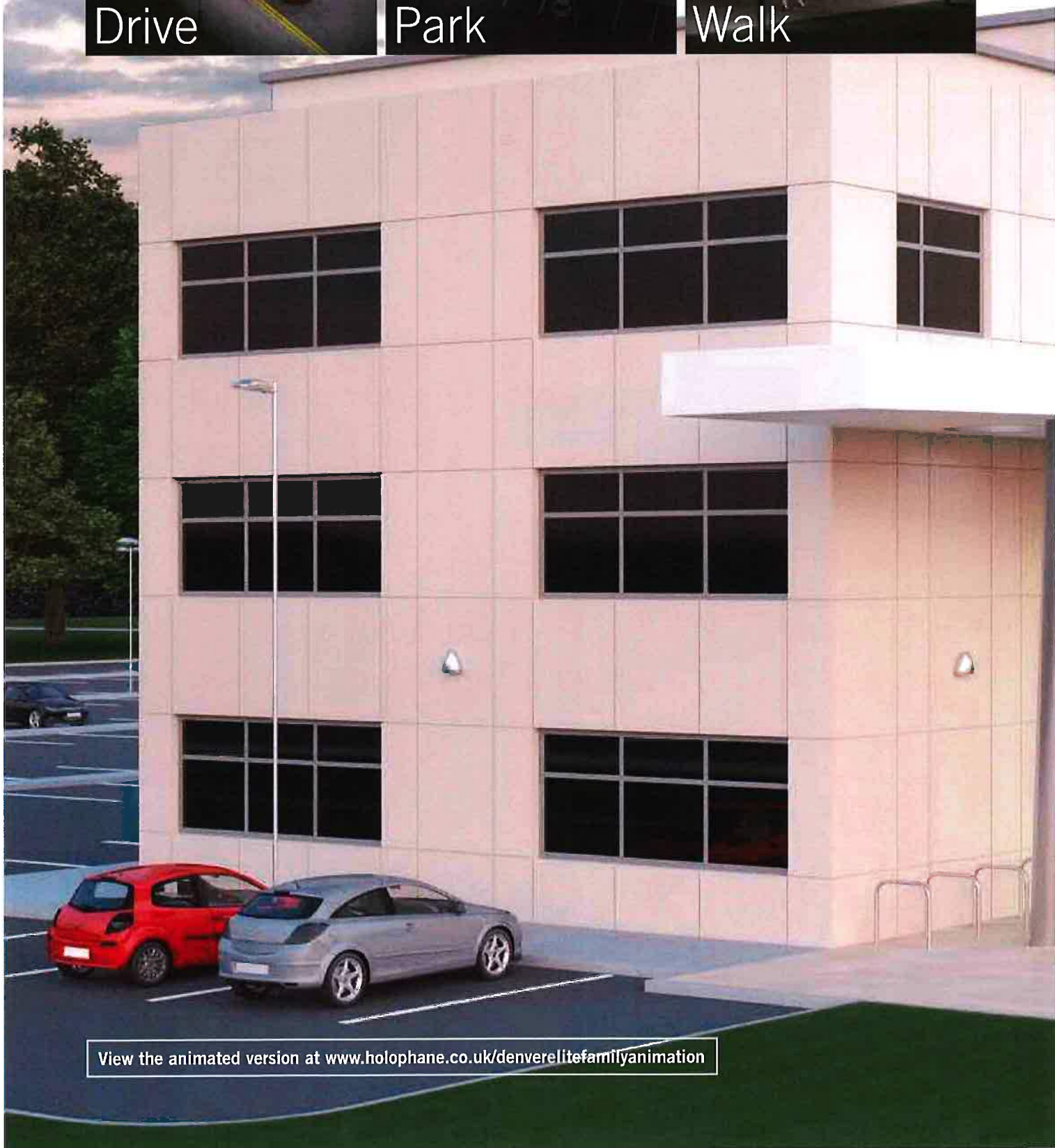
Drive



Park



Walk

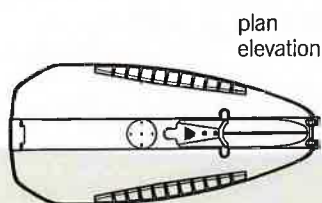


View the animated version at www.holophane.co.uk/denverelitefamilyanimation



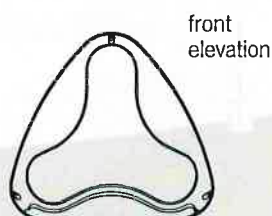
Denver™ Elite Pole

A fusion of contemporary styling and dynamic design, developed with the latest technology. The Denver™ Elite Pole completes the family range of luminaires.



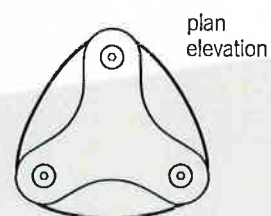
Denver™ Elite Wall

The design keeps the trilobular profile associated with the Denver™ Elite family and is a progression of everything learnt from our existing wall mounted products whilst taking new technologies and environmental issues into consideration.



Denver™ Elite Bollard

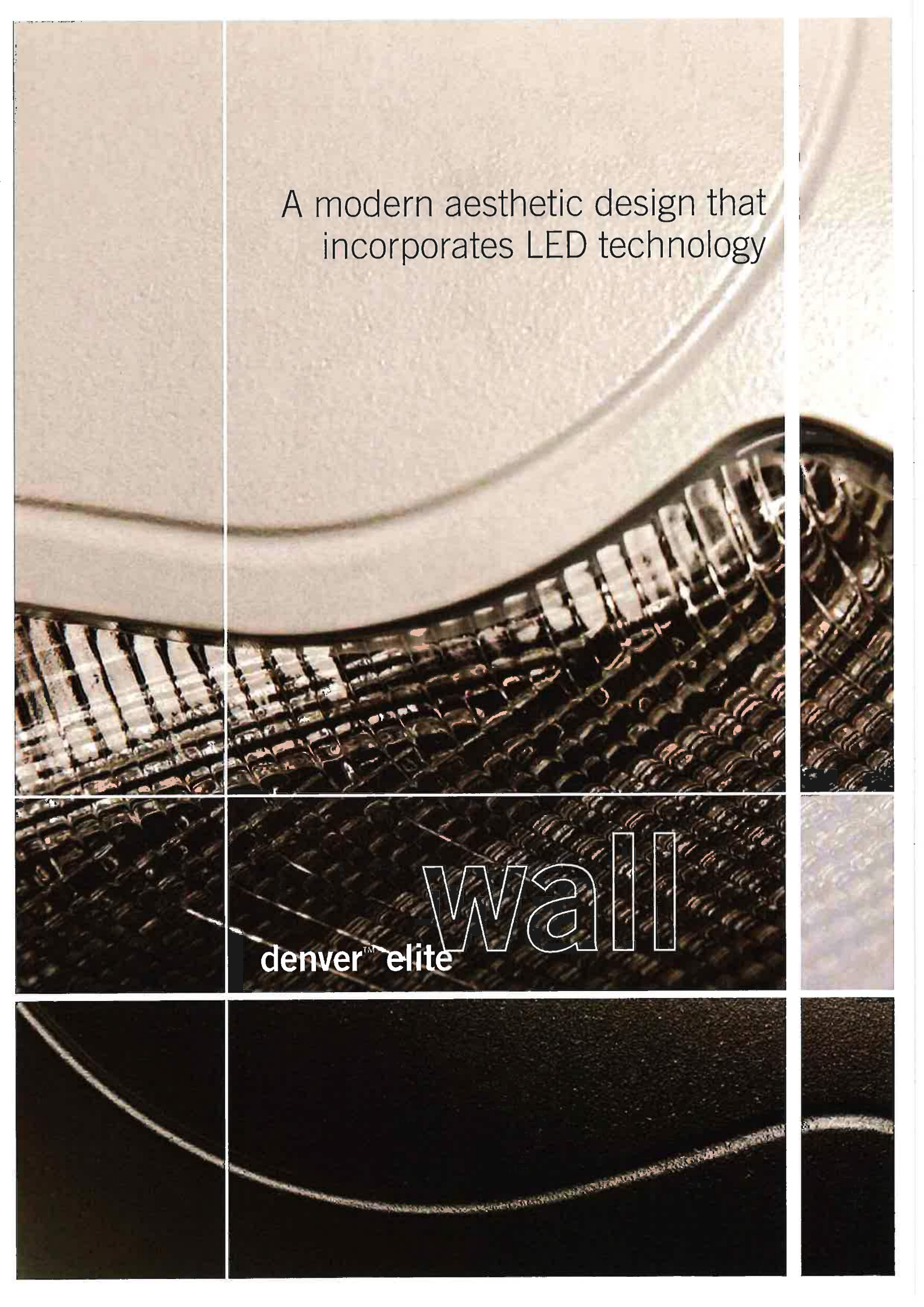
Combines a palette of design variables, which deliver aesthetic appeal, quality, durability and performance. The Denver™ Elite bollard is a modern aesthetic design that incorporates LED technology.



DENVER™
elite system



wall



A modern aesthetic design that
incorporates LED technology

wall
denver™ elite



The **Denver™ Elite Wall** combines aesthetic appeal, quality, durability and performance.

The Denver™ Elite wall is a modern aesthetic design that incorporates LED technology. With its stylised design and prismatic glass optic, providing a high performance asymmetric distribution, with wide spacings and high efficiency. This makes the Denver™ Elite Wall an industry leading wall mount product.

The design keeps the trilobular profile associated with the Denver™ Elite family and is a progression of everything we've learnt from our existing wall mounted products whilst taking new technologies and environmental issues into consideration.

optics / light source

> 1000 - 3000 lumen package LED options

approvals

IP65

EN60598

CE

For further information please visit the Holophane website
www.holophane.co.uk



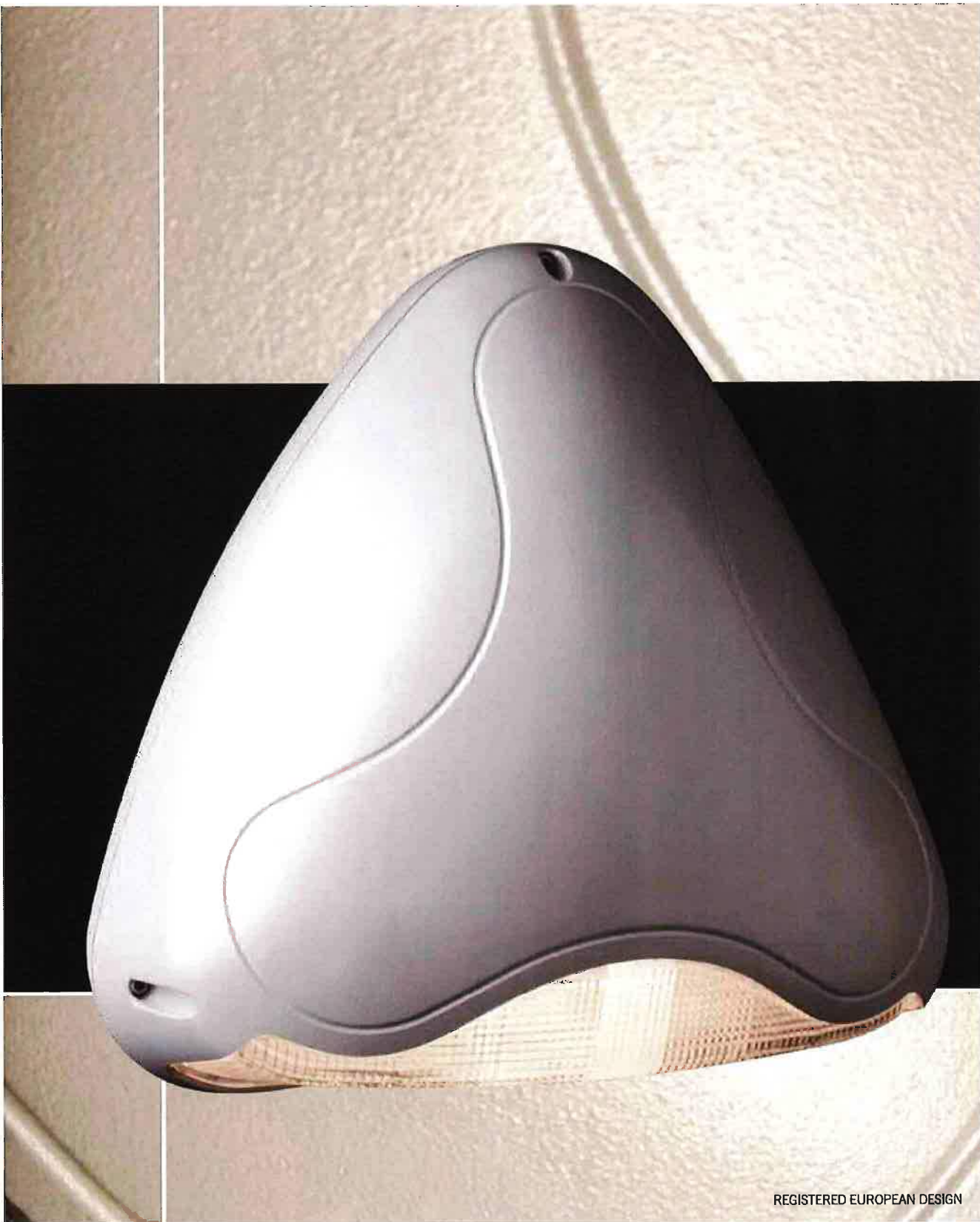
typical luminaire performance

Configuration	Delivered Lumens†	Power Consumption	Drive Current	Rated Life of LED Module (L70B50 @Tq 20°C)*
.LA01X	c. 1,000	12W	350mA	100,000 hours
.LA02X	c. 2,000	24W	700mA	100,000 hours
.LM014	c. 1,000	17W	350mA	73,000 hours
.LM024	c. 2,000	22W	500mA	75,000 hours
.LM034	c. 3,000	31W	700mA	70,000 hours

Note: Data is correct at time of print.

* For other life metric data in line with IEC PAS62722-2-1 and 62717 contact your Holophane Representative for details.

† Based on the average of all the optical distribution options.



REGISTERED EUROPEAN DESIGN



External ribs on the housing to allow air flow and ensure cool running of electronic control gear.



Photocell option



Cable 'Knock Out' points allow simple and flexible installation and through wiring.

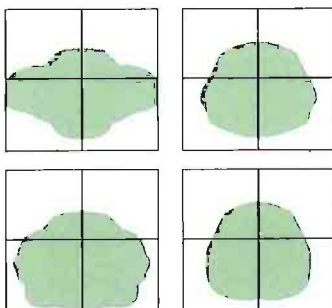
specification

The luminaire shall consist of a high pressure LM6 die-cast aluminium body, with integrated thermal management design. Denver™ Elite Wall incorporates an LED driver suitable for LED technology sources. The optical arrangement consists of an aluminium internal reflector and a prismatic glass lens providing an asymmetric distribution. Three stainless steel screws maintain uniform compression on a closed cell silicon gasket to ensure an IP65 rating at all times. The luminaire shall be suitable for wall mounting with rear, top, side and through wiring options via 20mm Ø knockout cable entry/exit points. Denver™ Elite Wall complies with the requirements of EN60598 with a choice of additional options and accessories.

applications

Frontages, Building Perimeters, Amenity Areas Walkways, Passage Ways, Precincts

light distribution



weight & thermal data

Lamp Type	Weight (kg)	Min. Operating Temperature (°C)	Max. Ambient Temperature (°C)
LA01X	6.4	TBC	40
LA02X	6.4	TBC	40
LM014	6.4	-25	40
LM024	6.4	-25	40
LM034	6.4	-25	40

*The maximum ambient temperatures stated are for exterior use only. For interior use deduct 10°C from the temperature stated.

features and benefits

Contemporary styling

- > Unique 'registered' trilobular design giving an aesthetic appeal that complements today's modern architecture and continues the Denver™ Elite family range

High quality construction

- > Durability ensured by a high pressure die cast LM6 aluminium housing and glass optic.
- > The housing is designed to include thermal management features.
- > Designed to IP65 to provide a fully weather sealed rating.

Optional photocell

- > Photocell option discretely designed into the casting to ensure clean aesthetics.

Flexibility during installation

- > A variety of improved cable 'knock-out' points allow simple and flexible installation and through wiring.

Emergency options

- > Available LED.

Low ULOR option available

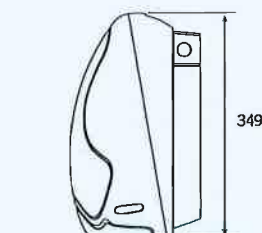
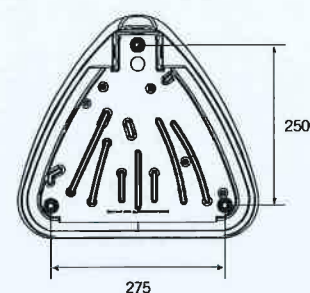
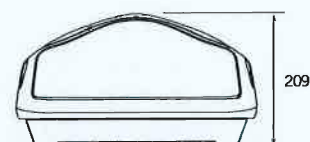
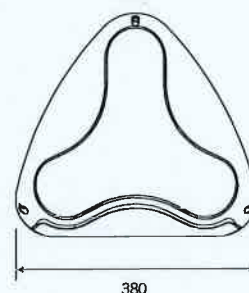
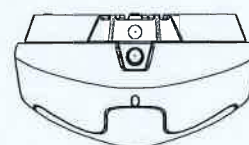
- > LED version has circa <3% ULOR as standard.

Vandal resistant

- > Robust design and construction offering a vandal resistant product.



dimensions in mm



Note: The specifications of the Holophone luminaire and columns represents typical values. All descriptions, illustrations, drawings and specifications in the Holophone catalogue and website represent only general particulars of the goods to which they apply and shall not form part of any contract. The company reserves the right to change specifications at its discretion without prior notification or public announcement.

ordering details

To find out more
please visit
www.holophane.co.uk

Code	Denver™ Elite Wall							
Code	Lamp Type (required)							
.LA013	LED light engine producing c.1000 lm with a nominal 3000K colour temperature							
.LA014	LED light engine producing c.1000 lm with a nominal 4000°K colour temperature							
.LA023	LED light engine producing c.2000 lm with a nominal 3000K colour temperature							
.LA024	LED light engine producing c.2000 lm with a nominal 4000°K colour temperature							
.LM014	LED light engine producing c.1000 lm with a nominal 4000°K colour temperature							
.LM024	LED light engine producing c.2000 lm with a nominal 4000°K colour temperature							
.LM034	LED light engine producing c.3000 lm with a nominal 4000°K colour temperature							
Code	Lens (required)							
.PGL	Prismatic Glass Lens							
.CGL	Clear Glass Lens*							
Code	Distribution (optional)							
.NR	Long and narrow light distribution*							
.AY	Asymmetric light distribution**							
.SY	Symmetrical light distribution***							
Code	Colour (required)							
.C1	Smooth White (RAL 9016)							
.C4	Textured Graphite (RAL 7011)							
.C6	Smooth Grey (RAL 7035)							
.C7	Black (RAL 9005)							
.C9	Metallic Silver (RAL 9006)							
.RAL****	RAL Colour (customer choice)							
Code	Paint Finish							
.C	Enhanced Paint Finish							
Code	Photocell							
.T	Photocell fitted							
Code	Emergency							
.EM3	3hr maintained emergency							
Code	HF Control Gear							
.LRD	DALI Enabled							
DEW	26PL4	PGL	ULS	.C7	.C	.T	.EM3	.LRD

*Available with .LA014/LA013 and .LA024/LA023 lamp options only. ** Not available with .LMXXX options *** Available with .LM014, .LM024 and .LM034 options only.

Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturers data) and luminaire power of +/- 5%.



luminaire accessories

Code

GL.M20 1 x M20 IP68 plastic gland for cable entry suitable for cables between 6mm - 13mm Ø

Note: For specific LED variant data please contact Holophane for Denver™ Elite Wall LED data sheet

DENVER™
elite system
bollard



"...with excellent attention to detail and form, the Denver™ Elite Bollard performs extremely well"
LOA judge



bollard

denver™ elite

The **Denver™ Elite bollard** combines a palette of design variables, which include aesthetic appeal, quality, durability and performance.

The Denver™ Elite bollard is a modern aesthetic design that incorporate LED technology. Despite its stylised design the prismatic optical performance of the bollard is still industry leading offering a choice of distributions. The trilobe design profile with patented decorative light line membrane is a progression of everything we've learnt from our existing bollard whilst taking new technologies and environmental issues into consideration.

The product has been designed to incorporate a heat barrier that enables a 'cool to touch' feature and ensures that the product adheres to BS EN ISO 13732-1. The membrane is mounted within the cap itself ensuring that it meets the 'cool to touch' standard at all times. In addition the barrier allows us to create a unique 'light line'. Giving you a safe and stylised product in one.



Patent Awarded
GB1004999.7

REGISTERED EUROPEAN DESIGN

ordering details

To find out more
please visit
www.holophane.co.uk

Code	Denver™ Elite Bollard											
DEB												
Code	Lamp Type (required)											
.L014	LED light engine producing c.1,000 lm with a nominal 4000K											
.L024	LED light engine producing c.2,000 lm with a nominal 4000K											
Code	Distribution											
.PAY	Asymmetrical Distribution											
Code	Optical Enclosure											
.SU	Single Sided Asymmetric Distribution											
.DO	Double Sided Bisymmetric Distribution											
.TR	Triple Sided Symmetric Distribution											
Code	Head / Height											
.H75	750mm High											
.H100	1000mm High											
Code	Colour (required)											
.C1	Smooth White (RAL 9016)											
.C4	Textured Graphite (RAL 7011)											
.C6	Smooth Grey (RAL 7035)											
.C7	Black (RAL 9005)											
.C9	Metallic Silver (RAL 9006)											
RAL****	RAL Colour (customer choice)											
Code	Paint Finish											
.C	Enhanced Paint Finish											
Code	Cut Outs											
.MCB	Mini circuit breaker											
Code	Auxiliary Circuits											
.TW	Through Wiring option											
Code	Emergency											
.ME1	3hr maintained emergency IP65											
Code	Screws											
.V1	Vandal-resistant screws											
Code	Optics											
.A	Acrylic Prismatic Lens											
DEB	26PI.4	IYA	DO	H75	C9	.C	.MCB	.TW	.ME1	.V1	.A	

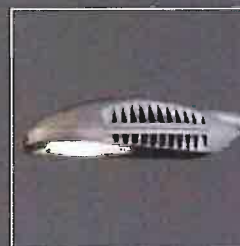
Example DEB .26PL4 .LYA .DO .H75 .C9 .C .MCB .TW .ME1 .V1 .A

Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturers data) and luminaire power of +/- 5%.

luminaire accessories

Code	
DBL.FT	Set of 3 Bolts M10 x 100mm for Flange Base Fixing
DEB.ROOT	Root Mounting Spike to fit Flange Base Denver™ Elite Bollard
DBL.VK	Vandal key for Denver™ Elite Bollard

Other products in the
Denver™ Elite family range



Denver™ Elite Pole



Denver™ Elite Bollard



DENVER™
elite system



wall

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