



**INDUSTRIAL UNIT
PENRHYN ROAD
KNOWSLEY BUSINESS PARK
MERSEYSIDE
EXTERNAL LIGHTING
PROPOSALS**

CLIENT:
KNOWSLEY DEVELOPMENT LTD
THE OLD FORGE
49 HIGH STREET
HENLEY-IN-ARDEN
B95 5AA

PREPARED BY:
HALLIGAN CONSULTING ENGINEERS
32 LUDGATE HILL
BIRMINGHAM
B3 1EH

REF: B3575/MG/EXT
DATE: OCTOBER 2021
REV A- OCTOBER 2021
REV B – JANUARY 2022

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**B3575/P/100 – External Lighting (Planning)
Plus
Luminaire Details**

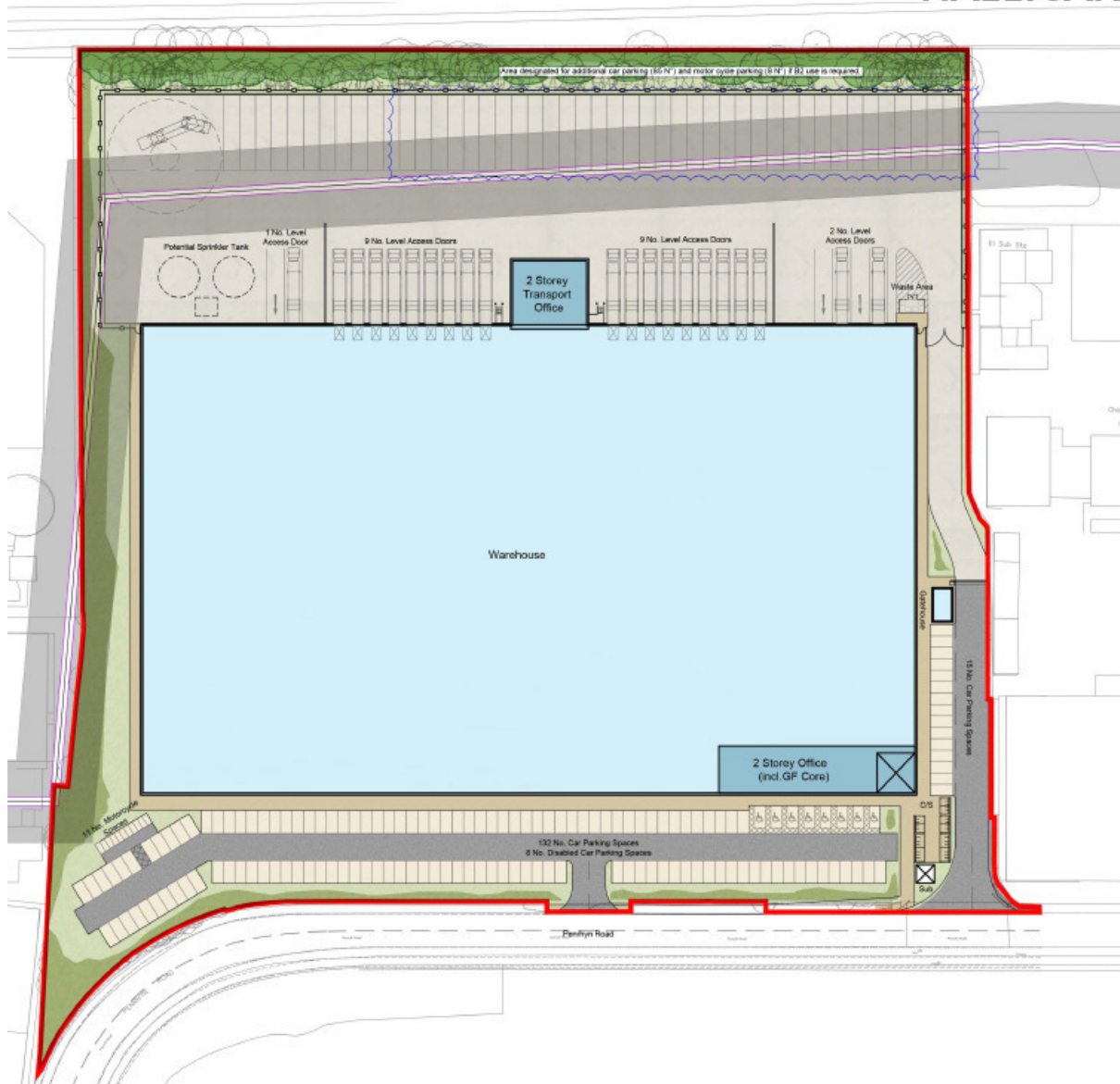
1.0 INTRODUCTION

This report has been produced at the request of Knowsley Development Ltd to outline the external lighting proposals at the new industrial development, Penrhyn Road, Knowsley Business Park, Merseyside.

This report shall be read in conjunction with the external lighting drawing (planning) B3575/P/100.

The scheme comprises of a single industrial unit with associated service yard, car parks and external areas.

We are not aware of any wildlife corridors located around the site. Although, our design is based on the provision of backlight shields on the column fittings along the green boundary which runs parallel with A580 East Lancashire Road.



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 Yard	50 lux	20%
Building Entrance	50 lux	20%
Car Parking	20 lux	20%
Access Road	20 lux	20%
Car Park	20 lux	20%
Pavement Walkways	10 lux	20%

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.
E2	Rural	Low district brightness (SQM ~15 to 20)	Sparsely inhabited rural areas, village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Well inhabited rural and urban settlements, small town centres of suburban locations
E4	Urban	High district brightness	Town/city centres with high levels of night-time activity

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 luminaires⁴.

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.

Wall mounted luminaires located on the building will be mounted at 6m, 8m or 10m AFFL. The column fittings will be mounted on 6m or 8m high columns. The mounting heights are detailed on the external lighting (planning) drawing.

Due to the use of glazing to the main entrance of the proposed building, the external lighting design allows for the provision of local lighting bollards to enhance the lighting at the main building entrance.

Details of the light fittings are provided within the appendices 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 have the facility to extinguish the lights during the hours of darkness if the site is not operational. The lighting however is designed to achieve the post curfew obtrusive light standards for environmental zone E3 to allow 24/7 operation.

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 4000K.

3.0 LIGHTING CALCULATIONS

Software generated calculations have been undertaken and the results are shown on the external lighting (planning) drawing B3575/P/100. An overspill isolux plot has been produced 0.5 lux & 1.0 lux.

The calculations show average lux levels to each area of the proposed development along with the Isolux overspill plots.

The table below shows the summary of the calculation results and the obtrusive light.

Obtrusive Light			
ULR (Sky Glow)			0.01%
Area of the site	Average (lux)	Minimum (lux)	Min/Ave
Service Yard	50	20	0.40
Building Entrance	54	42	0.78
Car Parking	22	15	0.68
Access Road	23	10	0.43
Pavement Walkways	11	5	0.45
SPILL	2	0	0

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

As there are no residential properties in the close proximity to the development, no vertical spill lighting calculations have been undertaken.

4.0 CONCLUSIONS

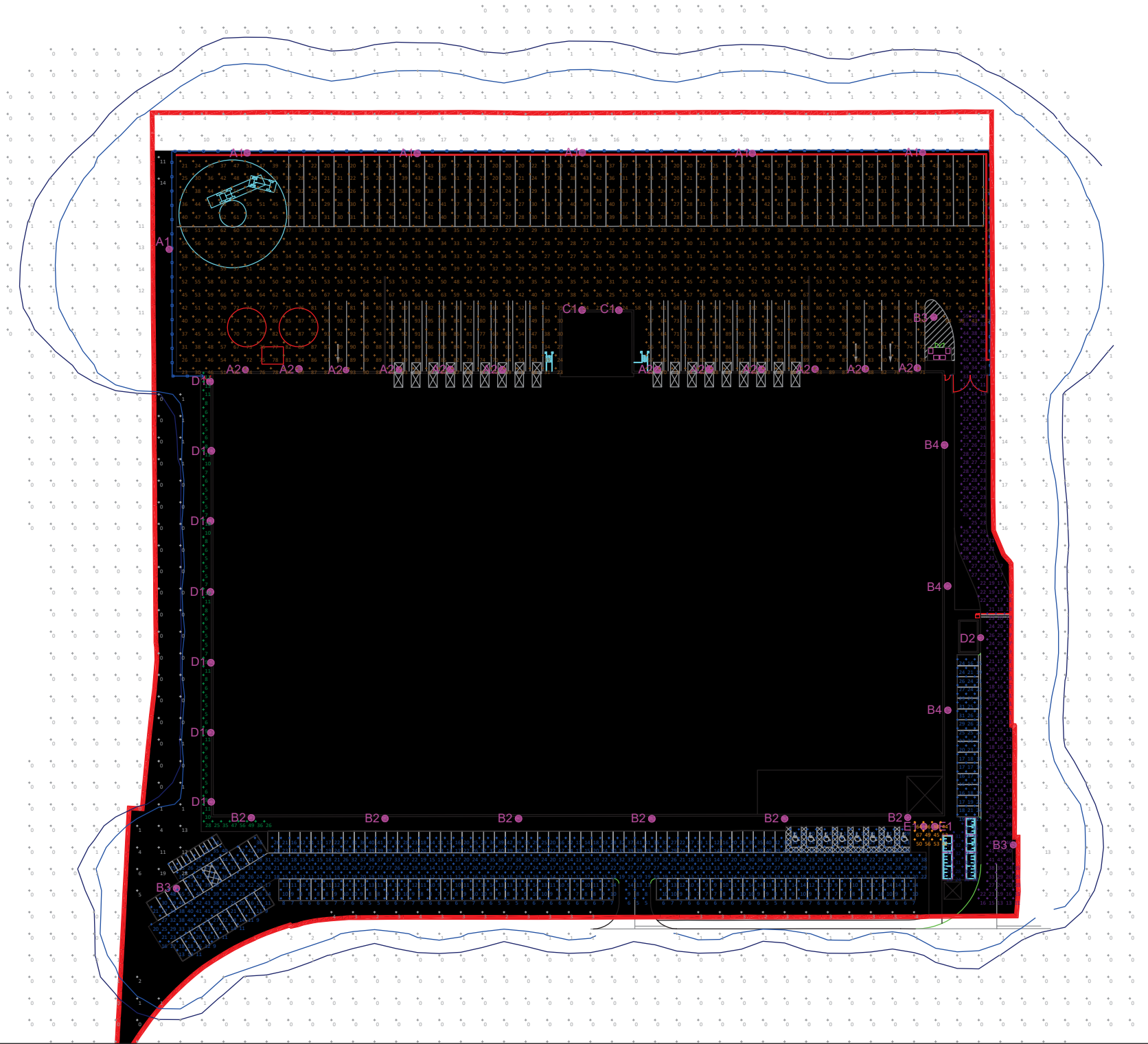
The proposed lighting scheme provides the lighting levels in accordance with the British Standards.

The overspill levels are reduced by the use of backlight shields to the column fittings along the green boundary.

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 Appendices

B3575/P/100 – External Lighting (Planning)
Plus
Luminaire Details



THIS DRAWING MUST BE USED IN CONJUNCTION WITH ALL
OTHER DRAWINGS AND SPECIFICATIONS.
DO NOT SCALE THIS DRAWING.
THIS DRAWING MUST BE USED AS AN INSTALLATION
DRAWING UNDER THE CONTRACT.

LEGEND

- A1: HOLOPHANE D-SERIES 2 328W 4000K LED METALLIC SILVER RAL 9006, POST TOP FITTING, BACK LIGHT SHIELD, FORWARD THROW LIGHT DISTRIBUTION FITTING ON 10M HIGH GALVANISED COLUMN
- A2: HOLOPHANE D-SERIES 2 328W 4000K LED METALLIC SILVER RAL 9006, POST TOP FITTING, FORWARD THROW LIGHT DISTRIBUTION FITTING ON 10M HIGH GALVANISED COLUMN
- B1: HOLOPHANE D-SERIES 1 131W 4000K LED METALLIC SILVER RAL 9006, POST TOP FITTING, FORWARD THROW LIGHT DISTRIBUTION FITTING ON 8M HIGH GALVANISED COLUMN
- B2: HOLOPHANE D-SERIES 1 131W 4000K LED METALLIC SILVER RAL 9006, POST TOP FITTING, FORWARD THROW LIGHT DISTRIBUTION FITTING ON 8M HIGH GALVANISED COLUMN
- B3: HOLOPHANE D-SERIES 1 131W 4000K LED METALLIC SILVER RAL 9006, POST TOP FITTING, ASYMMETRIC LIGHT DISTRIBUTION FITTING ON 8M HIGH GALVANISED COLUMN
- B4: HOLOPHANE D-SERIES 1 131W 4000K LED METALLIC SILVER RAL 9006, POST TOP FITTING, ASYMMETRIC LIGHT DISTRIBUTION FITTING ON 8M HIGH GALVANISED COLUMN
- C1: HOLOPHANE WALLPACK 42W 4000K LED BLUE/HEAD LUMINAIRE SILVER RAL 9006, FORWARD THROW LIGHT DISTRIBUTION FITTING ON 8M HIGH GALVANISED COLUMN
- D1: HOLOPHANE DENVER ID WALL 6.5W 4000K LED METALLIC SILVER RAL 9006, WALL MOUNTED FITTING ON 2.8M AFFL
- D2: HOLOPHANE DENVER ID WALL 10.3W 4000K LED METALLIC SILVER RAL 9006, WALL MOUNTED FITTING ON 2.8M AFFL
- E1: HOLOPHANE DENVER ID BOLLARD 9W 4000K LED METALLIC SILVER RAL 9006

Statistics				
Description	Symbol	Avg	Min	Max
Area Foot - 250,450sq	+	22.5m	32.5m	6.41
Car Park - 200,230sq	+	20.5m	3.5m	6.25
Car Park - 200,230sq	+	22.5m	13.5m	5.8
Grass	+	22.5m	23.5m	0.72
Footway - 30.1m	+	14.5m	41.5m	0.73
Area Footway - 100,450sq	+	13.5m	5.5m	6.45
Service Yard - 100,450sq	+	10.5m	20.5m	6.45
EPH	+	2.5m	8.5m	6.05

P4	Issued For Planning	25/01/
P3	Issued For Planning	13/01/
P2	Issued For Planning	26/10/
P1	Issued For Planning	17/09/

REV	DESCRIPTION	DATE
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Birmingham
B3 1EH
info@halligans.com
www.halligans.com

CLIENT
Graftogate

PROJECT
**Penrhyn Road, Knowsley Business Park
Mersyside**

TITLE
External Lighting Layout(Planning)

DATE	DESIGNED	CHECKED
January 2022	JP	MG

SCALE	FIGURE
1:300	A0

REVISION
B3575/P/100
P2

> DATASHEET - EXTERNAL - DSX1

DSX2.2.LA364.FW.C9



Product image may not represent the final configuration stated above.



PRODUCT SPECIFICATION



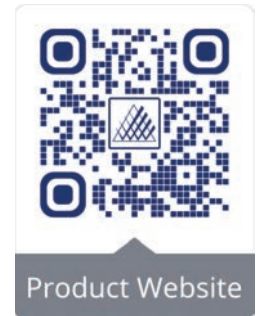
DSX2 HOLOPHANE WEBSITE

DSX2.2.LA364.FW.C9

Holophane D-Series 2 luminaire. Single-piece die-cast aluminium housing conforming to EN1706 AC-46500, with integral heat sink fins to optimise thermal management. LED light engine modules are IP66 with individual PMMA lenses. Housing sealed to IP65 via hinged access door (two captive fixing screws). Installation via bespoke Holophane mounting feature for quick and easy installation. International Dark-Sky Association Approved (colour temperatures 3000K or warmer are approved under the IDA).

This specific SKU includes:

- Series 2
- LED light engine producing c.36,000 lumen with a nominal 4000K colour temperature
- Forward throw light distribution
- Metallic Silver (RAL9006)



DSX2B.10.1A.LMZ.GV

Holophane tubular base compartment column for use with DSX2 Luminaires. 10 metre, Single head, For light & medium area wind zones (compliant to EN40).

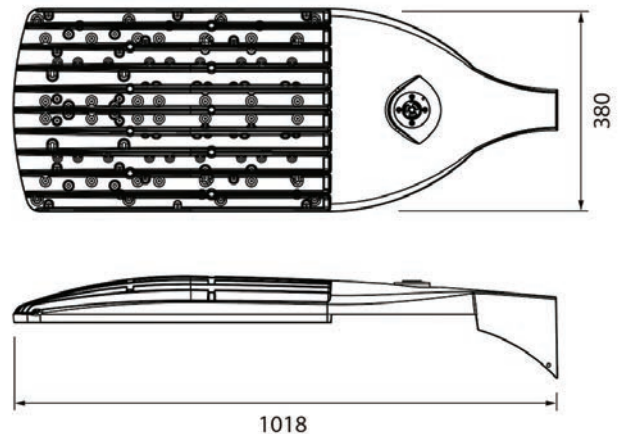
- Bracket galvanised
- Direct embedment

PERFORMANCE

Drive Current from Driver:	1050mA
Lumens:	40,789
CCT:	4000K
CRI:	70
Power:	328W
Fitting Current:	1.47A
Fitting Inrush:	106A - 0.3ms
Number of Drivers:	2
2x Driver 1 Inrush:	53A - 0.3ms



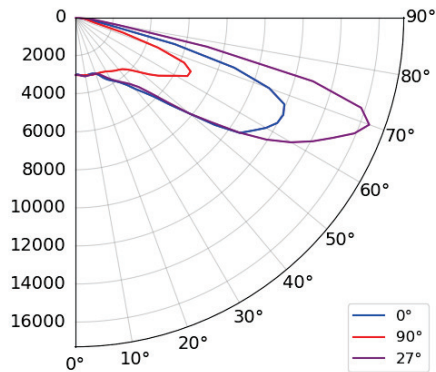
DIMENSIONS



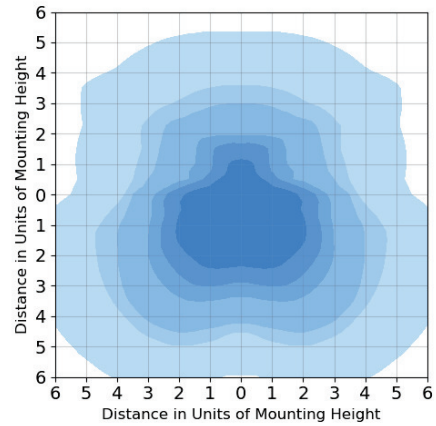
PHOTOMETRY



Polar Plot

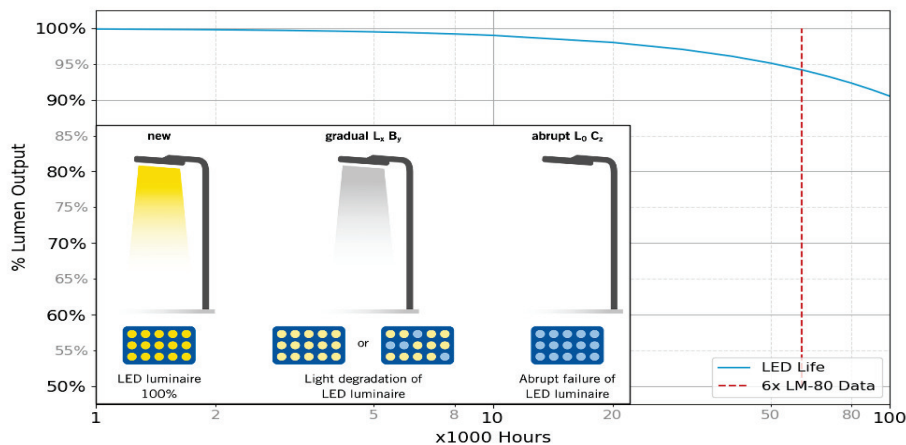


Isoilluminance Plot



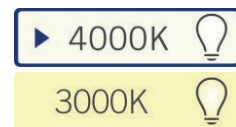
IES File: DSX2.2.LA364.FW

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on. Graph shows data for LxxB50.

COLOUR TEMPERATURES



COLOURS

Selected Colour

	C9	Metallic Silver (RAL9006)
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Custom Colour Available

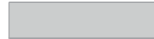
	RAL****	Customer specified colour
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*Choosing a custom colour may increase the cost and lead time.

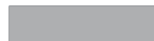
Standard Colours Available

	C1	Smooth White (RAL9016)
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	C4	Smooth Graphite (RAL7011)
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	C6	Smooth Grey (RAL7035)
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	C7	Textured Black (RAL9005)
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	C9	Metallic Silver (RAL9006)
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Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturer's data) and luminaire power of +/- 5%.

The specifications of the Holophane luminaires represents typical values. All descriptions, illustrations, drawings and specifications in the Holophane catalogue, Datasheets 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.

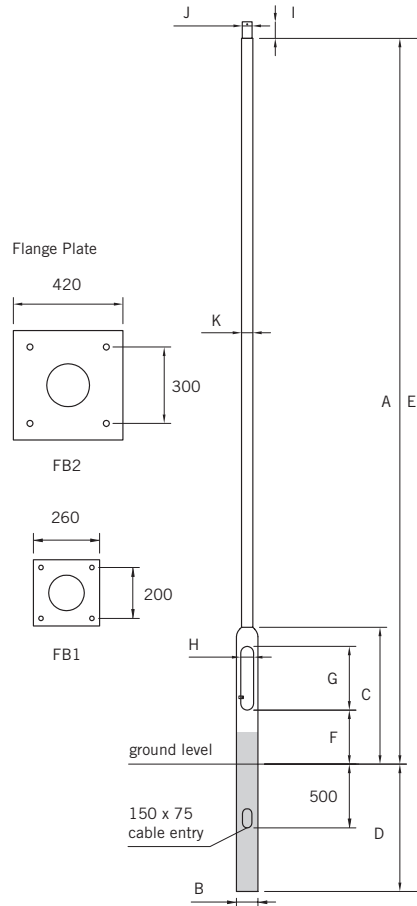
> DATASHEET

DSX2B.10.1A.LMZ.GV



Holophane products that are suitable

CityMax
Denver Elite pole
D-Series
Factor
Factor small
V-Max



	Nominal Height	Base Diameter*	Base Height	Planting Depth	Overall Length	Door to Ground	Door Opening Length	Door Opening Width	Spigot Length*	Spigot Diameter*	Shaft Diameter*	Weight kg*	Bending Moment (ULS) Nm
description	A	B	C	D	E	F	G	H	I	J	K		
2.5m standard duty	2500	140	1075	800	3300	400	500	100	-	-	76	27	2100
3m standard duty	3000	140	1075	800	3800	400	500	100	-	-	76	30	4666
3.5m standard duty	3500	140	1075	800	4300	400	500	100	-	-	76	32	2100
4m standard duty	4000	140	1075	800	4800	400	500	100	-	-	76	34	6484
4.5m standard duty	4500	140	1075	800	5300	400	500	100	-	-	76	37	5108
5m standard duty	5000	140	1075	800	5800	400	500	100	-	-	76	39	6149
5.5m standard duty	5500	140	1075	1000	6500	400	500	100	-	-	76	44	6003
6m standard duty	6000	140	1075	1000	7000	400	500	100	-	-	76	46	5999
6m heavy duty	5700	168	1200	1000	6700	400	600	115	130	76	89	71	10404
8m standard duty	7700	168	1200	1200	8900	400	600	115	130	76	89	89	10072
8m heavy duty	7700	168	1300	1200	9000	500	600	115	250	101	114	107	15699
8m extra heavy duty	7700	194	1300	1200	9000	500	600	115	250	127	140	136	18973
10m standard duty	9700	168	1300	1500	11200	500	600	115	250	101	114	150	18067
10m heavy duty	9700	194	1300	1500	11200	500	600	115	250	127	140	168	23193
10m extra heavy duty	9700	194	1300	1500	11200	500	600	115	250	152	168	220	28317
12m standard duty	11700	194	1300	1700	13400	500	600	115	250	127	140	213	26251
12m heavy duty	11700	194	1300	1700	13400	500	600	115	250	127	168	260	40390

* Exclusion TBC

2.5-6m std Poles
Flange Plate FB1
Bolts M18 x 400
Flange Plate FB2
Bolts M24 x 820

Flange Plate and Anchor Bolt information will be confirmed at time of order due to the necessity in ensuring the correct plate and Anchor Bolts are supplied.
F Intl +44 (0)1908 363 789
Column type to be confirmed at time of order as this is based on luminaire weight, windage and geographical location.
F +44 (0)1908 367 618
E info@holophane.co.uk

Holophane Europe Limited
Bond Avenue, Milton Keynes
Buckinghamshire MK1 1JG
United Kingdom



stepped steel - CityMax Large only post top

	Nominal Height	Base Diameter	Base Height	Planting Depth	Overall Length	Door to Ground	Door Opening Length	Door Opening Width	Spigot Length	Spigot Diameter	Shaft Diameter	Weight kg	Bending Moment (ULS) Nm
description	A	B	C	D	E	F	G	H	I	J	K		
6m	6000	140	1075	1000	7000	400	500	115	-	-	-	46	5999
8m	7700	168	1300	1200	9000	500	600	115	100	76	114	107	15699
10m	9700	168	1300	1500	11200	500	600	115	100	76	114	150	18067
12m	11700	194	1300	1700	13400	500	600	115	100	76	140	168	26251
15m	14700	194	1200	2000	17000	400	600	115	100	76	168	306	40300

twin head

	Nominal Height	Base Diameter	Base Height	Planting Depth	Overall Length	Door to Ground	Door Opening Length	Door Opening Width	Spigot Length	Spigot Diameter	Shaft Diameter	Weight kg	Bending Moment (ULS) Nm
description	A	B	C	D	E	F	G	H	I	J	K		
8m	7400	194	1200	1200	8800	400	600	115	200	127	139.7	125	22610
10m	9400	194	1200	1500	11100	400	600	115	200	152.4	168.3	208	39131
12m	11400	194	2500	1700	13300	1000	600	115	200	152.4	168.3	295	41585

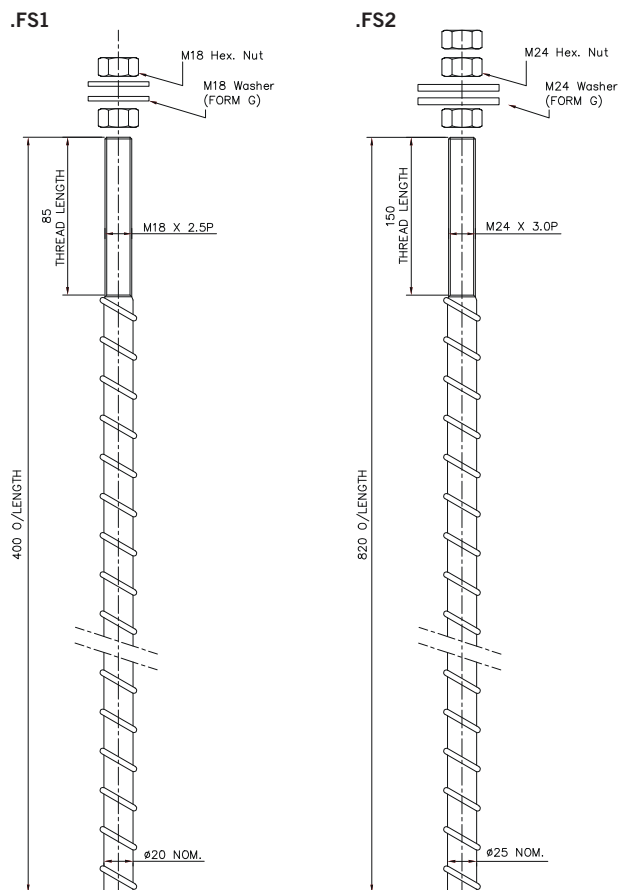
Note: For Terrain Category 2 locations LMZ, HVZ & HEZ

For columns supplied with optional flange base HoloPhane offers two types of foundation bolts.

Note: The material used for the bolts is Fe E500 grade steel, with yield strength 500 N/mm² and minimum UTS 550 N/mm².

HEL.FS1 M18 Bolts (FS1) x 400 mm long

HEL.FS2 M24 Bolts (FS2) x 820 mm long



> DATASHEET - EXTERNAL - DSX1

DSX1.2.LA164.FW.C9



Product image may not represent the final configuration stated above.



PRODUCT SPECIFICATION



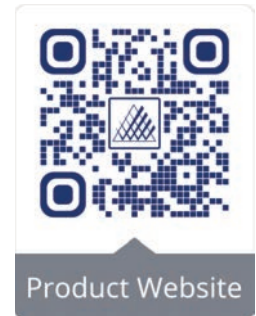
DSX1 HOLOPHANE WEBSITE

DSX1.2.LA164.FW.C9

Holophane D-Series 1 luminaire. Single-piece die-cast aluminium housing conforming to EN1706 AC-46500, with integral heat sink fins to optimise thermal management. LED light engine modules are IP66 with individual PMMA lenses. Housing sealed to IP65 via hinged access door (two captive fixing screws). Installation via bespoke Holophane mounting feature for quick and easy installation. International Dark-Sky Association Approved (colour temperatures 3000K or warmer are approved under the IDA).

This specific SKU includes:

- Series 2
- LED light engine producing c.16,000 lm with a nominal 4000°K colour temperature
- Forward throw light distribution
- Metallic Silver (RAL9006)



HAWA.AU.GV9

Holophane D-Series wall bracket .

- Bracket galvanised and painted metallic silver (RAL9006)

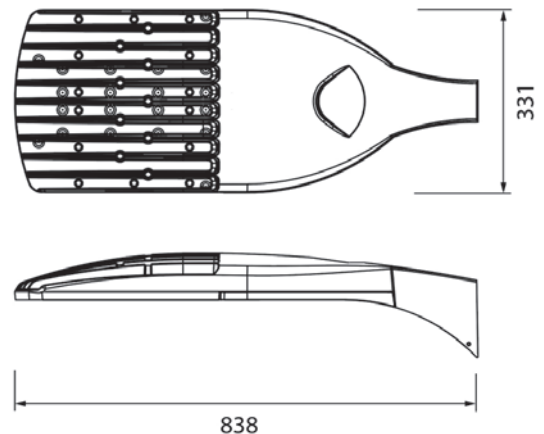
Please note that it is the responsibility of the installing contractor to confirm that the bracket offered within this quotation suits the application.

PERFORMANCE

Drive Current from Driver:	700mA
Lumens:	17,044
CCT:	4000K
CRI:	70
Power:	131W
Fitting Current:	0.59A
Fitting Inrush:	53A - 0.3ms
Number of Drivers:	1
1x Driver 1 Inrush:	53A - 0.3ms



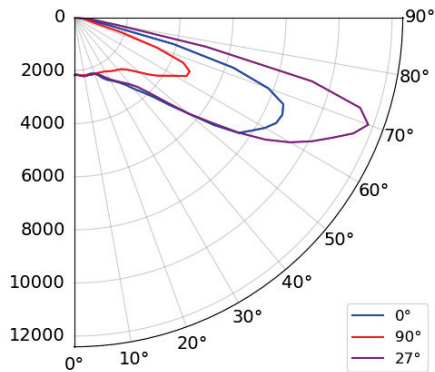
DIMENSIONS



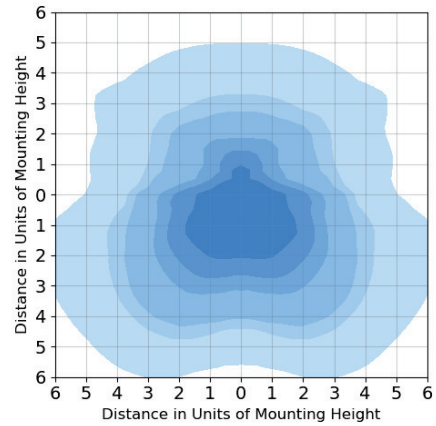
PHOTOMETRY



Polar Plot

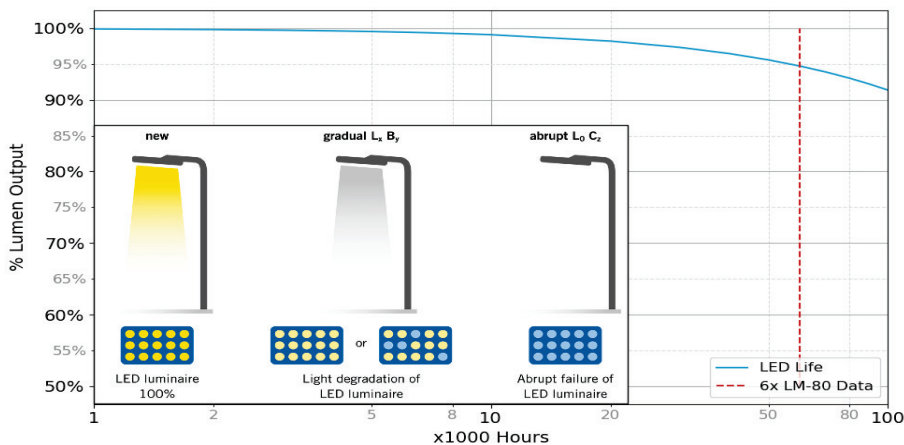


Isoilluminance Plot



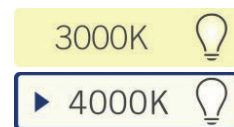
IES File: DSX1.2.LA164.FW

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on. Graph shows data for LxxB50.

COLOUR TEMPERATURES



COLOURS

Selected Colour

	C9	Metallic Silver (RAL9006)
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Custom Colour Available

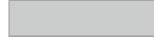
	RAL****	Customer specified colour
--	----------------	---------------------------

*Choosing a custom colour may increase the cost and lead time.

Standard Colours Available

	C1	Smooth White (RAL9016)
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	C4	Smooth Graphite (RAL7011)
---	-----------	---------------------------

	C6	Smooth Grey (RAL7035)
---	-----------	-----------------------

	C7	Textured Black (RAL9005)
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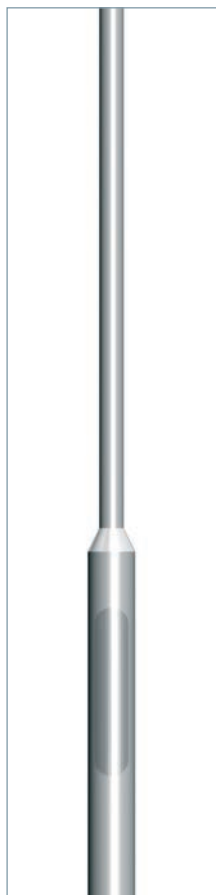
	C9	Metallic Silver (RAL9006)
---	-----------	---------------------------

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

The specifications of the Holophane luminaires represents typical values. All descriptions, illustrations, drawings and specifications in the Holophane catalogue, Datasheets 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.

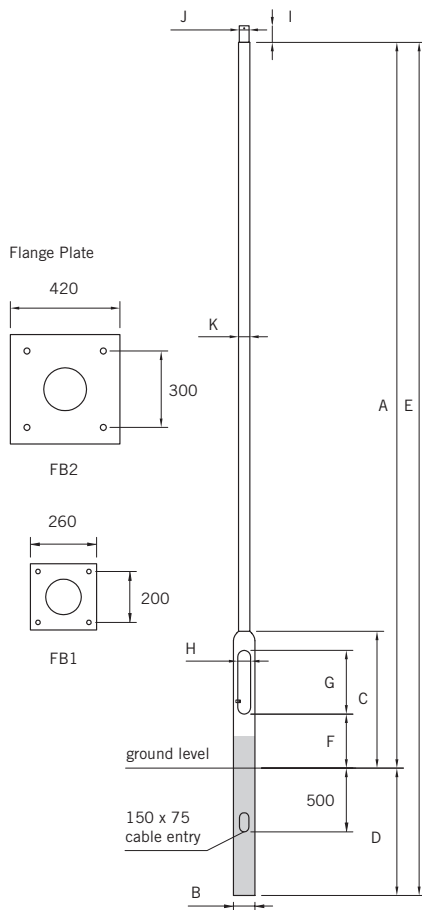
> DATASHEET

DSX1B.6.1A.LMZ.GV



Holophane products that are suitable

CityMax
Denver Elite pole
D-Series
Factor
Factor small
V-Max



	Nominal Height	Base Diameter*	Base Height	Planting Depth	Overall Length	Door to Ground	Door Opening Length	Door Opening Width	Spigot Length*	Spigot Diameter*	Shaft Diameter*	Weight kg*	Bending Moment (ULS) Nm
description	A	B	C	D	E	F	G	H	I	J	K		
2.5m standard duty	2500	140	1075	800	3300	400	500	100	-	-	76	27	2100
3m standard duty	3000	140	1075	800	3800	400	500	100	-	-	76	30	4666
3.5m standard duty	3500	140	1075	800	4300	400	500	100	-	-	76	32	2100
4m standard duty	4000	140	1075	800	4800	400	500	100	-	-	76	34	6484
4.5m standard duty	4500	140	1075	800	5300	400	500	100	-	-	76	37	5108
5m standard duty	5000	140	1075	800	5800	400	500	100	-	-	76	39	6149
5.5m standard duty	5500	140	1075	1000	6500	400	500	100	-	-	76	44	6003
6m standard duty	6000	140	1075	1000	7000	400	500	100	-	-	76	46	5999
6m heavy duty	5700	168	1200	1000	6700	400	600	115	130	76	89	71	10404
8m standard duty	7700	168	1200	1200	8900	400	600	115	130	76	89	89	10072
8m heavy duty	7700	168	1300	1200	9000	500	600	115	250	101	114	107	15699
8m extra heavy duty	7700	194	1300	1200	9000	500	600	115	250	127	140	136	18973
10m standard duty	9700	168	1300	1500	11200	500	600	115	250	101	114	150	18067
10m heavy duty	9700	194	1300	1500	11200	500	600	115	250	127	140	168	23193
10m extra heavy duty	9700	194	1300	1500	11200	500	600	115	250	152	168	220	28317
12m standard duty	11700	194	1300	1700	13400	500	600	115	250	127	140	213	26251
12m heavy duty	11700	194	1300	1700	13400	500	600	115	250	127	168	260	40390

* Exclusion TBC

2.5-6m std Poles Flange Plate FB1 Bolts M18 x 400

8-12m std Poles Flange Plate FB2 Bolts M24 x 820

Flange Plate and Anchor Bolt information will be confirmed at time of order due to the necessity in ensuring the correct plate and Anchor Bolts are supplied.

Column type to be confirmed at time of order as this is based on luminaire weight, windage and geographical location.

F +44 (0)1908 367 618

Flange Plate and Anchor Bolt information will be confirmed at time of order due to the necessity in ensuring the correct plate and Anchor Bolts are supplied.

F Intl +44 (0)1908 363 789

Column type to be confirmed at time of order as this is based on luminaire weight, windage and geographical location.

E info@holophane.co.uk

Holophane Europe Limited
Bond Avenue, Milton Keynes
Buckinghamshire MK1 1JG
United Kingdom



stepped steel - CityMax Large only

post top

	Nominal Height	Base Diameter	Base Height	Planting Depth	Overall Length	Door to Ground	Door Opening Length	Door Opening Width	Spigot Length	Spigot Diameter	Shaft Diameter	Weight kg	Bending Moment (ULS) Nm
description	A	B	C	D	E	F	G	H	I	J	K		
6m	6000	140	1075	1000	7000	400	500	115	-	-	-	46	5999
8m	7700	168	1300	1200	9000	500	600	115	100	76	114	107	15699
10m	9700	168	1300	1500	11200	500	600	115	100	76	114	150	18067
12m	11700	194	1300	1700	13400	500	600	115	100	76	140	168	26251
15m	14700	194	1200	2000	17000	400	600	115	100	76	168	306	40300

twin head

	Nominal Height	Base Diameter	Base Height	Planting Depth	Overall Length	Door to Ground	Door Opening Length	Door Opening Width	Spigot Length	Spigot Diameter	Shaft Diameter	Weight kg	Bending Moment (ULS) Nm
description	A	B	C	D	E	F	G	H	I	J	K		
8m	7400	194	1200	1200	8800	400	600	115	200	127	139.7	125	22610
10m	9400	194	1200	1500	11100	400	600	115	200	152.4	168.3	208	39131
12m	11400	194	2500	1700	13300	1000	600	115	200	152.4	168.3	295	41585

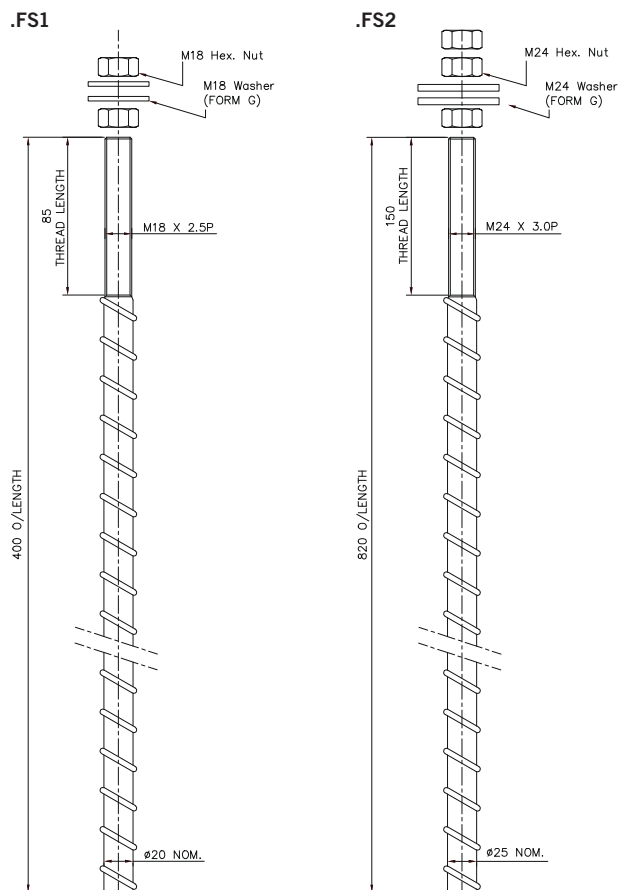
Note: For Terrain Category 2 locations LMZ, HVZ & HEZ

For columns supplied with optional flange base HoloPhane offers two types of foundation bolts.

Note: The material used for the bolts is Fe E500 grade steel, with yield strength 500 N/mm² and minimum UTS 550 N/mm².

HEL.FS1 M18 Bolts (FS1) x 400 mm long

HEL.FS2 M24 Bolts (FS2) x 820 mm long



> DATASHEET - EXTERNAL - DSX1

DSX1.2.LA164.AY.C9



Product image may not represent the final configuration stated above.



PRODUCT SPECIFICATION



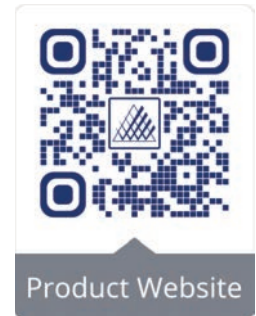
DSX1 HOLOPHANE WEBSITE

DSX1.2.LA164.AY.C9

Holophane D-Series 1 luminaire. Single-piece die-cast aluminium housing conforming to EN1706 AC-46500, with integral heat sink fins to optimise thermal management. LED light engine modules are IP66 with individual PMMA lenses. Housing sealed to IP65 via hinged access door (two captive fixing screws). Installation via bespoke Holophane mounting feature for quick and easy installation. International Dark-Sky Association Approved (colour temperatures 3000K or warmer are approved under the IDA).

This specific SKU includes:

- Series 2
- LED light engine producing c.16,000 lm with a nominal 4000°K colour temperature
- Asymmetric light distribution
- Metallic Silver (RAL9006)



HAWA.AU.GV9

Holophane D-Series wall bracket .

- Bracket galvanised and painted metallic silver (RAL9006)

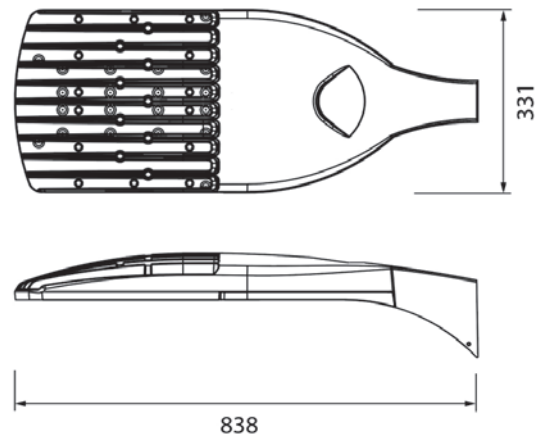
Please note that it is the responsibility of the installing contractor to confirm that the bracket offered within this quotation suits the application.

PERFORMANCE

Drive Current from Driver:	700mA
Lumens:	16,556
CCT:	4000K
CRI:	70
Power:	131W
Fitting Current:	0.59A
Fitting Inrush:	53A - 0.3ms
Number of Drivers:	1
1x Driver 1 Inrush:	53A - 0.3ms



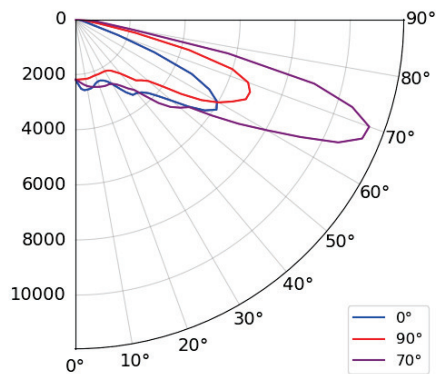
DIMENSIONS



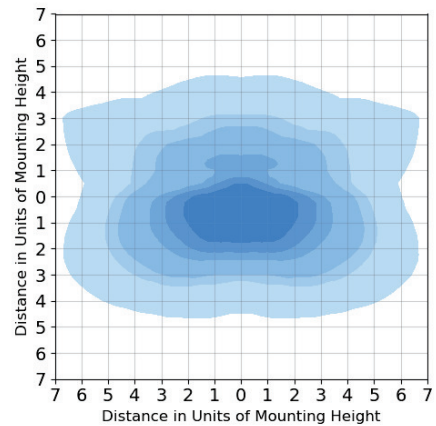
PHOTOMETRY



Polar Plot

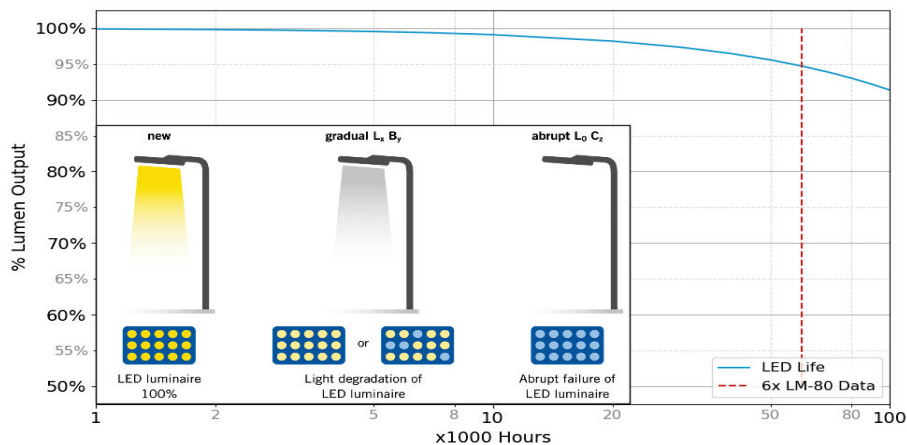


Isoilluminance Plot



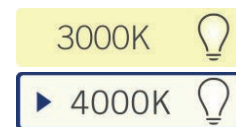
IES File: DSX1.2.LA164.AY

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on. Graph shows data for LxxB50.

COLOUR TEMPERATURES



COLOURS

Selected Colour

	C9	Metallic Silver (RAL9006)
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Custom Colour Available

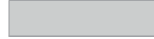
	RAL****	Customer specified colour
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*Choosing a custom colour may increase the cost and lead time.

Standard Colours Available

	C1	Smooth White (RAL9016)
---	-----------	------------------------

	C4	Smooth Graphite (RAL7011)
---	-----------	---------------------------

	C6	Smooth Grey (RAL7035)
---	-----------	-----------------------

	C7	Textured Black (RAL9005)
---	-----------	--------------------------

	C9	Metallic Silver (RAL9006)
---	-----------	---------------------------

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

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> DATASHEET - AMENITY - WAP

WAP.1.LA054.FW.C9.CTR



Product image may not represent the final configuration stated above.



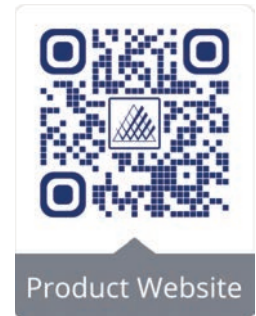
PRODUCT SPECIFICATION



WAP HOLOPHANE WEBSITE

Holophane Wallpack LED bulkhead luminaire, manufactured from marine grade die-cast aluminium with integrated thermal management design. LED light engine modules are IP65 with individual PMMA lenses. Luminaire housing sealed to IP65 and suitable for wall mounting with rear, top, bottom and side via threaded 3/4 inch cable entry/exit points. International Dark-Sky Association Approved (colour temperatures 3000K or warmer are approved under the IDA)
This specific SKU includes:

- Series 1
- LED light engine producing c.5,000 lm with a nominal 4000°K colour temperature
- Forward throw light distribution
- Metallic Silver (RAL9006)
- Conduit Thread Reducer Adapter from 3/4 inch NPT to 20mm (2 supplied in box)



PERFORMANCE

Lumens:	5,190
CCT:	4000K
CRI:	70
Power:	42W
Fitting Current:	0.19A
Fitting Inrush:	43A - 0.26ms
Number of Drivers:	1
1x Driver 1 Inrush:	43A - 0.26ms

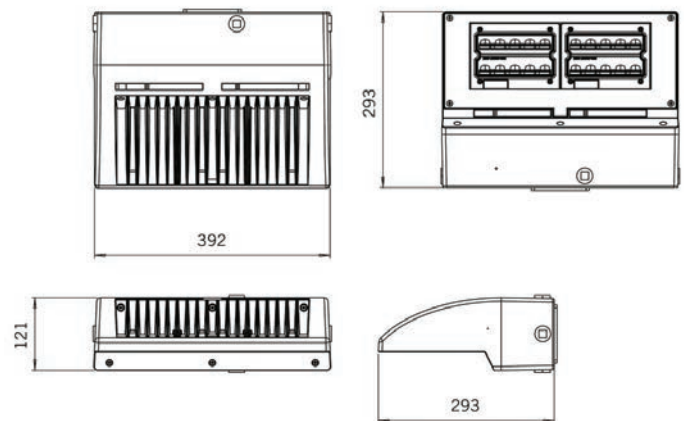


10Kg



[Installation Guide](#)

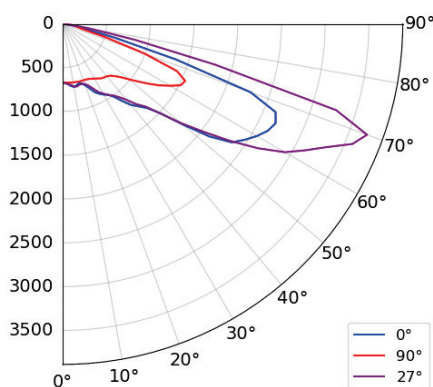
DIMENSIONS



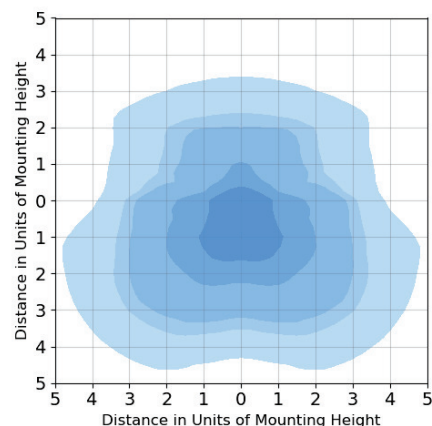
PHOTOMETRY

[IES FILE](#)

Polar Plot

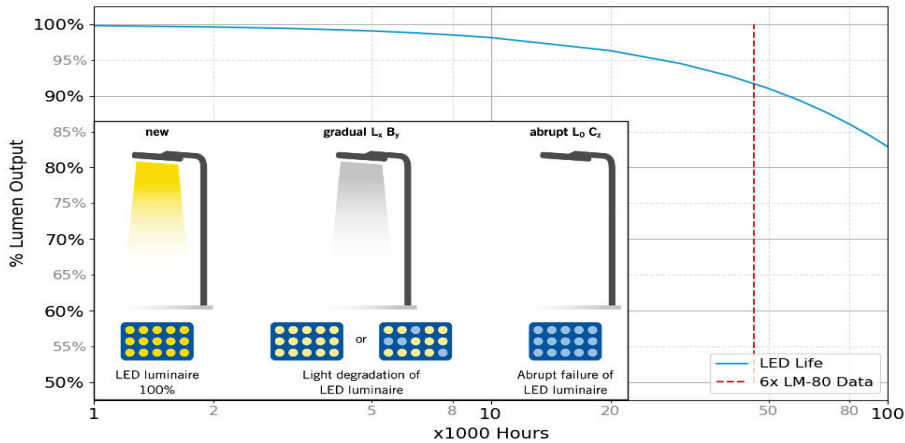


Isoilluminance Plot



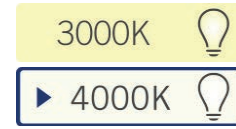
IES File: WAP.1.LA054.FW

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on. Graph shows data for LxxB50.

COLOUR TEMPERATURES



COLOURS

Selected Colour

C9	Metallic Silver (RAL9006)
-----------	---------------------------

Standard Colours Available

C1	Smooth White (RAL9016)
C4	Smooth Graphite (RAL7011)
C6	Smooth Grey (RAL7035)
C7	Textured Black (RAL9005)
C9	Metallic Silver (RAL9006)

Custom Colour Available

RAL****	Customer specified colour
----------------	---------------------------

*Choosing a custom colour may increase the cost and lead time.

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> DATASHEET - EXTERNAL - DWL

DWL.1.LA014.HN.C9.W007



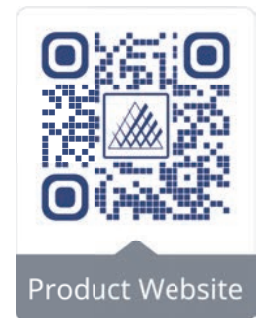
Product image may not represent the final configuration stated above.



PRODUCT SPECIFICATION

Holophane Denver iD: Wall consists of a 2-part body and a removable LED module manufactured from LM6 marine grade die-cast aluminum with integrated thermal management properties. The LED module optical arrangement consists of LEDs with individual PMMA optical lenses surrounded by a patented white Transition Zone to reduce perceived glare. This is sealed behind high-transparency 'hydrophilic' glass. Both luminaire body and LED module are sealed to IP65 and rated IK10. Drivers and LED are mounted separately from each other to promote low operating temperatures and long system life. Mounting of the luminaire is facilitated by mounting the back casting of luminaire to suitable surface. Cable entry and termination to the luminaire is via an 2 x IP65 M20 cable gland. International Dark-Sky Association Approved (colour temperatures 3000K or warmer are approved under the IDA).
This specific SKU includes:

- Series 1
- LED light engine producing c.1,000 lm with a nominal 4000°K colour temperature
- High beam long and narrow distribution
- Metallic Silver (RAL9006)
- 7W



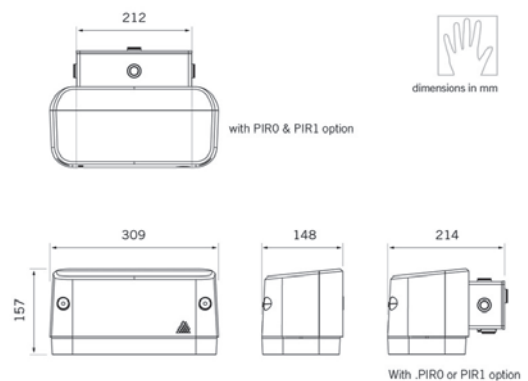
PERFORMANCE

Drive Current from Driver:	200mA
Lumens:	897
CCT:	4000K
CRI:	70
Power:	7W
Fitting Current:	0.03A
Fitting Inrush:	15A - 0.295ms
Number of Drivers:	1
1x Driver 1 Inrush:	15A - 0.295ms



6.5Kg

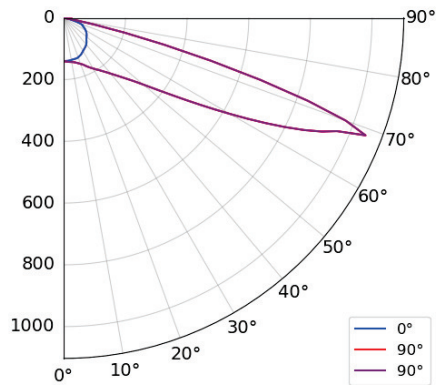
DIMENSIONS



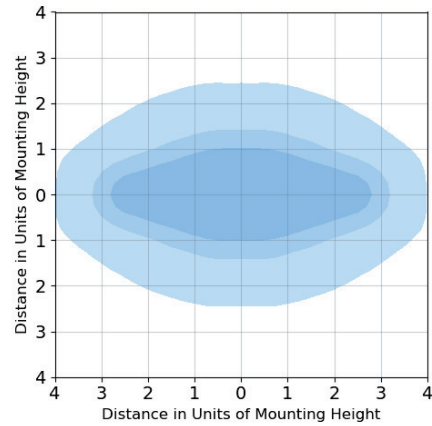
PHOTOMETRY



Polar Plot

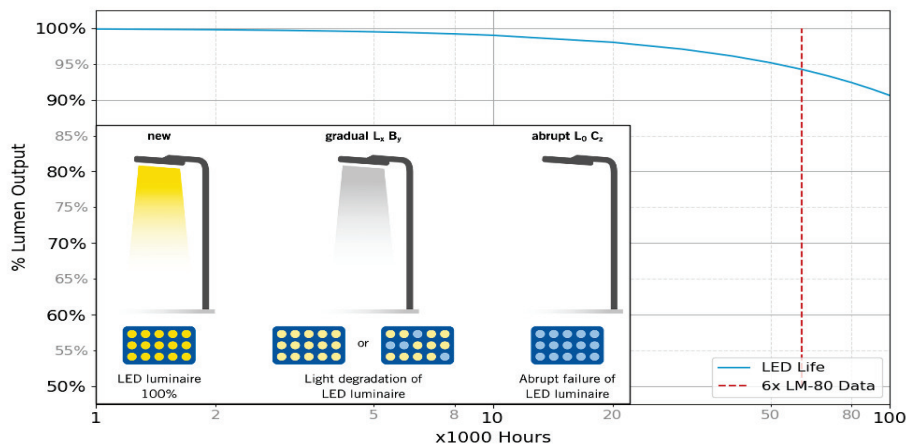


Isoilluminance Plot



IES File: DWL.1.LA014.HN.W007

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on. Graph shows data for LxxB50.

COLOUR TEMPERATURES



COLOURS

Selected Colour

	C9	Metallic Silver (RAL9006)
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Custom Colour Available

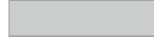
	RAL****	Customer specified colour
--	----------------	---------------------------

*Choosing a custom colour may increase the cost and lead time.

Standard Colours Available

	C1	Smooth White (RAL9016)
---	-----------	------------------------

	C4	Smooth Graphite (RAL7011)
---	-----------	---------------------------

	C6	Smooth Grey (RAL7035)
---	-----------	-----------------------

	C7	Textured Black (RAL9005)
---	-----------	--------------------------

	C9	Metallic Silver (RAL9006)
---	-----------	---------------------------

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

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> DATASHEET - EXTERNAL - DWL

DWL.1.LA024.AY.C9.W011



Product image may not represent the final configuration stated above.

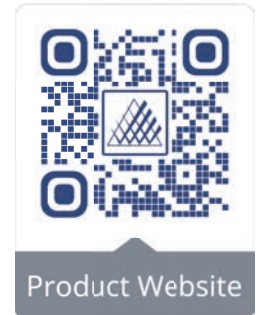


PRODUCT SPECIFICATION

Holophane Denver iD: Wall consists of a 2-part body and a removable LED module manufactured from LM6 marine grade die-cast aluminum with integrated thermal management properties. The LED module optical arrangement consists of LEDs with individual PMMA optical lenses surrounded by a patented white Transition Zone to reduce perceived glare. This is sealed behind high-transparency 'hydrophilic' glass. Both luminaire body and LED module are sealed to IP65 and rated IK10. Drivers and LED are mounted separately from each other to promote low operating temperatures and long system life. Mounting of the luminaire is facilitated by mounting the back casting of luminaire to suitable surface. Cable entry and termination to the luminaire is via an 2 x IP65 M20 cable gland. International Dark-Sky Association Approved (colour temperatures 3000K or warmer are approved under the IDA).

This specific SKU includes:

- Series 1
- LED light engine producing c.2,000 lm with a nominal 4000°K colour temperature
- Asymmetric light distribution
- Metallic Silver (RAL9006)
- 11W



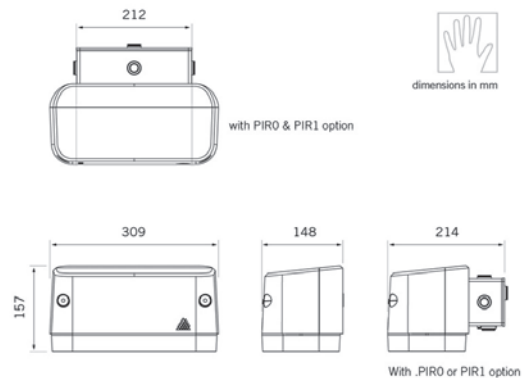
PERFORMANCE

Drive Current from Driver:	360mA
Lumens:	1,442
CCT:	4000K
CRI:	70
Power:	11W
Fitting Current:	0.05A
Fitting Inrush:	15A - 0.36ms
Number of Drivers:	1
1x Driver 1 Inrush:	15A - 0.36ms



6.5Kg

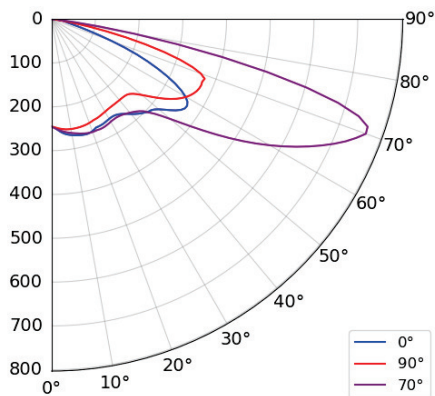
DIMENSIONS



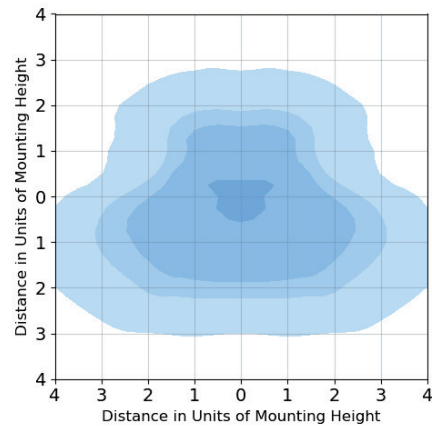
PHOTOMETRY



Polar Plot

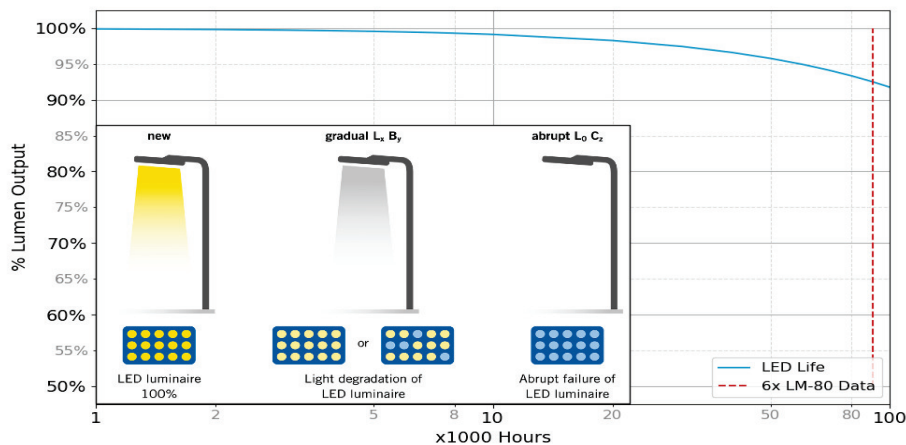


Isoilluminance Plot



IES File: DWL.1.LA024.AY.W011

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on. Graph shows data for LxxB50.

COLOUR TEMPERATURES



COLOURS

Selected Colour

	C9	Metallic Silver (RAL9006)
--	-----------	---------------------------

Custom Colour Available

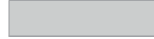
	RAL****	Customer specified colour
--	----------------	---------------------------

*Choosing a custom colour may increase the cost and lead time.

Standard Colours Available

	C1	Smooth White (RAL9016)
---	-----------	------------------------

	C4	Smooth Graphite (RAL7011)
---	-----------	---------------------------

	C6	Smooth Grey (RAL7035)
---	-----------	-----------------------

	C7	Textured Black (RAL9005)
---	-----------	--------------------------

	C9	Metallic Silver (RAL9006)
---	-----------	---------------------------

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

The specifications of the Holophane luminaires represents typical values. All descriptions, illustrations, drawings and specifications in the Holophane catalogue, Datasheets 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.

> DATASHEET - EXTERNAL - DBD

DBD.1.LA014.DO.AY.H100.C9.W009



Product image may not represent the final configuration stated above.

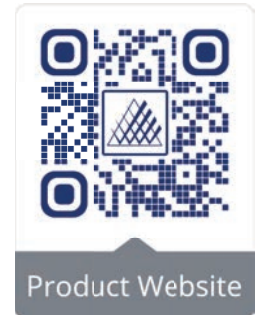


PRODUCT SPECIFICATION

Holophane Denver iD: Bollard luminaire. Extruded marine grade aluminium body with die-cast aluminium top and base secured by stainless steel nuts and sealed to IP65. The optical arrangement consists of individual optical modules with a patented transition zone to minimise glare. Suitable for flange base mounting (bolts available as an accessory).

This specific SKU includes:

- Series 1
- LED light engine producing c.1,000 lm with a nominal 4000°K colour temperature
- Double sided
- Asymmetric light distribution
- 1 metre high
- Metallic Silver (RAL9006)
- 9W

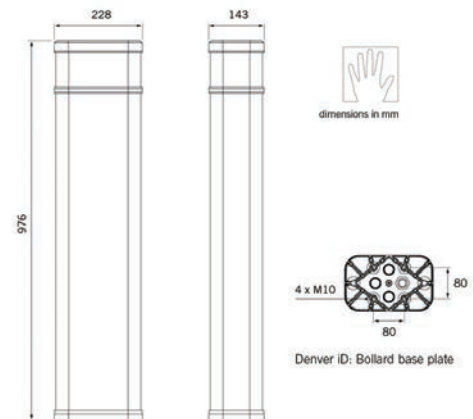


PERFORMANCE

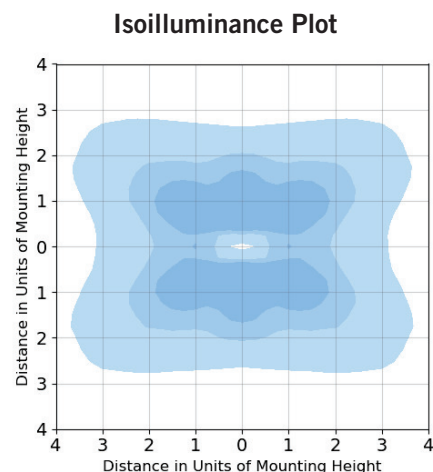
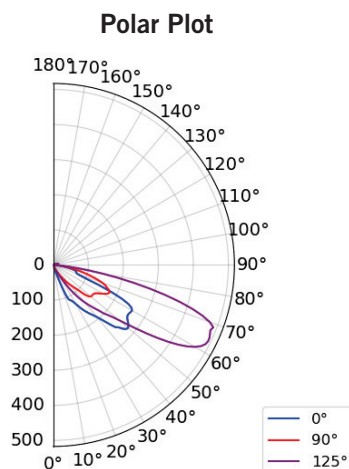
Drive Current from Driver:	265mA
Lumens:	931
CCT:	4000K
CRI:	70
Power:	9W
Fitting Current:	0.04A
Fitting Inrush:	15A - 0.295ms
Number of Drivers:	1
1x Driver 1 Inrush:	15A - 0.295ms



DIMENSIONS

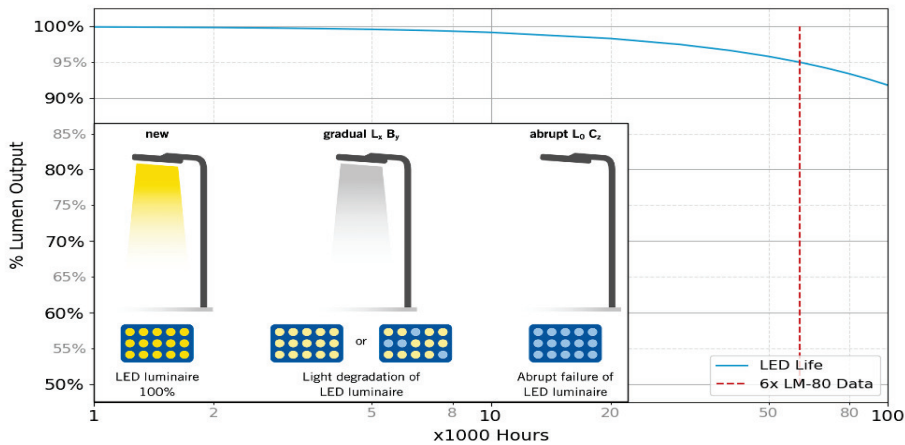


PHOTOMETRY



IES File: DBD.1.LA014.DO.AY.W009

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on. Graph shows data for LxxB50.

COLOUR TEMPERATURES



COLOURS

Selected Colour

C9	Metallic Silver (RAL9006)
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Standard Colours Available

C1	Smooth White (RAL9016)
C4	Smooth Graphite (RAL7011)
C6	Smooth Grey (RAL7035)
C7	Textured Black (RAL9005)
C9	Metallic Silver (RAL9006)

Custom Colour Available

RAL****	Customer specified colour
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*Choosing a custom colour may increase the cost and lead time.

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

The specifications of the Holophane luminaires represents typical values. All descriptions, illustrations, drawings and specifications in the Holophane catalogue, Datasheets 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.

SUMMARY

P109-3457 - KNOWSLEY BUSINESS PARK - PENRHYN ROAD

Line No.	Item Ref	Quantity	Catalogue
LUMINAIRE, COLUMN AND BRACKET PACKAGE			
10	A1s	6	DSX2.2.LA364.FW.C9
11	A1s	6	DSX2B.10.1A.LMZ.GV
ACCESSORY			
15	bls	5	DSX2.100LED.BLS
LUMINAIRE AND BRACKET PACKAGE			
20	AW	12	DSX2.2.LA364.FW.C9
21	AW	12	HAWA.AU.GV9
LUMINAIRE AND BRACKET PACKAGE			
40	BW	6	DSX1.2.LA164.FW.C9
41	BW	6	HAWA.AU.GV9
LUMINAIRE, COLUMN AND BRACKET PACKAGE			
50	B1	3	DSX1.2.LA164.FW.C9
51	B1	3	DSX1B.6.1A.LMZ.GV
LUMINAIRE AND BRACKET PACKAGE			
60	CW	3	DSX1.2.LA164.AY.C9
61	CW	3	HAWA.AU.GV9
LUMINAIRE			
70	D	2	WAP.1.LA054.FW.C9.CTR
LUMINAIRE			
80	F	7	DWL.1.LA014.HN.C9.W007
LUMINAIRE			
90	E	1	DWL.1.LA024.AY.C9.W011
LUMINAIRE			
100	H	2	DBD.1.LA014.DO.AY.H100.C9.W009
ACCESSORY			
110		2	DBD.ROOT
ACCESSORY			
120		9	HEL.CBEPAC2