

## Retrofit LED Solutions



# Our range

The DW Windsor range of light engines offer a simple, cost effective, retro-fit solution for the conversion of existing luminaires to the latest LED technology.

Our range has been designed to offer choice.

Whether you need to meet a particular lighting class and require a performance light engine to achieve maximum energy savings, or you are lighting for people, where the luminaire aesthetic and quality of light are of greater importance, we have a solution.

### Key advantages:


- Quick to install
- Short payback period
- With Diamond+ technology for precise lighting control
- Four light engine options to suit your project requirements
- Wide range of optical solutions providing like-for-like replacement
- Energy savings in excess of 60%
- Low whole life cost
- Choice of CMS options for further energy savings
- Peace of mind: a solution specifically designed for purpose and tested by the original manufacturer


To find out more contact us on 01992 474600 for a lighting design or quote.


Download the latest photometry at [dwwindsor.com](http://dwwindsor.com)



Option #1 Performance Light Engine	
<b>Description</b>	
Modular LED light engine with high power LEDs and performance optics. Providing optimal efficacy and optical flexibility for maximised energy savings.	
<b>Lumen range</b>	700 – 20000lm
<b>Power range</b>	7-168W
<b>Number of optics</b>	23
<b>Distribution options</b>	A / B / C / D / Z Diamond+ optics available
<b>Colour temperature</b>	4000K / 3000K / 2700K
<b>Colour rendering index</b>	4000/3000K>70Ra 2700K>80Ra
<b>Suitable product ranges</b>	Functional Classic Contemporary Traditional



Option #2 Performance CoB Light Engine	
	<b>Description</b>
	Chip on board (CoB) LED light engine, with a large silicone lens; providing performance lighting distributions from a single light source.
	Offers a highly efficient LED alternative where the aesthetic of a larger single light source, closer to the appearance of a lamp, is preferable to a multichip board.
	<b>Lumen range</b>
	2300 – 9000lm
	<b>Number of optics</b>
	4
	<b>Colour temperature</b>
4000K / 3000K / 2700K	
<b>Suitable product ranges</b>	
Traditional	



Option #3 Comfort CoB Light Engine

Description	
Chip on Board (CoB) light engine providing low glare, symmetrical lighting distribution for pedestrian areas. Uses a special silicone optic that mimics a traditional lamp distribution and a glass dome refractor to minimise glare. For an authentic representation of a lamped lantern with all the benefits of LED.	
Lumen range	Power range
1000 – 3200lm	12-39W
Number of optics	Distribution options
1	Symmetric only
Colour temperature	Colour rendering index
3000K / 2700K	>80Ra
Suitable product ranges	
Traditional	

## Option #4 Gas Effect Light Engine

Description	
Braun® LED solutions, by DW Windsor, offer specifiers a traditional gas mantle aesthetic while harnessing the energy and maintenance saving benefits of LED.	
Lumen range	Power range
350 – 3500lm	3–54W
Number of optics	Distribution options
1	Symmetric only
Colour temperature	Colour rendering index
2700K / 3000K	>85Ra
Suitable product ranges	
Traditional	





## Compatibility matrix

Use the following table to determine whether we have a standard retrofit solution for your existing lantern stock. Our LED solutions have been selected to provide as closely as possible the same photometric distribution and light on the ground as the lamped original, not a direct lumen output replacement. For maximum energy and maintenance savings, our Performance Light Engine uses the same LED and optical technology as our highly efficient Kirium Pro functional road lantern.

Existing light source	SON									
	50w				70w		100w		150w	250w
Retrofit solution	Performance	CoB Performance	CoB Comfort	Gas Effect	Performance	CoB Performance	Performance	CoB Performance	Performance	Performance
Berkeley	✓	✓	✓	✓						
Braemar	✓	✓	✓	✓						
Cradle 450	✓				✓		✓			
Dover 450	✓				✓		✓			
Dover 500	✓				✓		✓		✓	
DW400	✓				✓					
Ely A	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Ely B	✓	✓	✓	✓	✓	✓				
Ely C	✓	✓	✓	✓						
Excel 450	✓				✓		✓			
Excel 500	✓				✓		✓		✓	
Henley	✓	✓	✓	✓						
Iffley	✓	✓	✓	✓						
Knightsbridge Street	✓	✓	✓	✓	✓	✓				
Lancaster Street	✓	✓	✓	✓	✓	✓				
Newport	✓	✓	✓	✓						
Polar 450	✓				✓		✓			
Polar 500	✓				✓		✓		✓	
Portland	✓	✓								
Rio 450	✓				✓		✓			
Rio 500	✓				✓		✓		✓	
Salisbury	✓	✓	✓	✓						
Strand A+	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Strand A	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Strand B	✓	✓	✓	✓	✓	✓				
Strand C	✓	✓	✓	✓						
Stratum 450	✓				✓		✓			
Stratum 500	✓				✓		✓		✓	
Warwick	✓	✓	✓	✓						
Waterford	✓	✓	✓	✓						
Westminster Street	✓	✓	✓	✓	✓	✓				
Windsor Avenue	✓	✓	✓	✓	✓	✓				
Windsor Street	✓	✓	✓	✓	✓	✓				
York	✓	✓	✓	✓						

[illegible][illegible]

For support finding an appropriate light engine for your application please contact our lighting design team on **+44(0)1992 474600**.

## Case study

## Project:

Hertfordshire Heritage

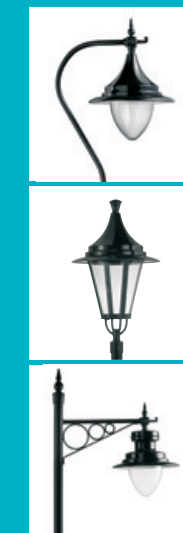
### Brief:

- Replace existing heritage lighting stock
- Work with customer to survey eligibility for retrofit
- Target to retrofit light engines on-site into a minimum 60% of existing luminaires

### Products:

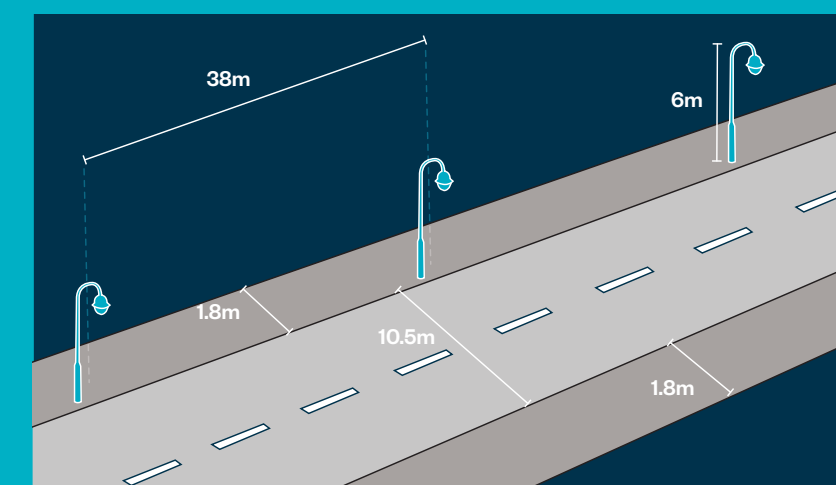
Strand A, Strand B, Hatfield,  
Ely and Windsor Street

For full case study, please  
visit: [dwwindsor.com](http://dwwindsor.com)



## Design specification (example scenario)

Lighting class P3, single sided configuration



	Requirements for P3 lighting class	Lamp solution	LED Retrofit	Improvements
Eav	7.5-11.25lux	8.23lux	8.69lux	
Emin	>1.5lux	1.65lux	2.98lux	
Uo	20%	0.2 (20% uniformity)	0.34 (34% uniformity)	<b>70% increase in uniformity</b>
Light source		70W SON-T+	24 LED, 450mA, 4000K	
Lumen output		6600lm	4350lm	<b>34% less light required</b>
Distribution		Diamond optic D(5/25)	Diamond+ D1	
Connected load		85W	35W	<b>58% less energy required</b>

Specifying our retrofit LED light engine

1.		2.		3.		4.		5.		6.							
Lantern	Code	Light engine	Code	Lamp being replaced	Code	Optic being replaced	Code	Colour temperature	Code	Existing control	Code						
Berkeley	BER	Performance	01	50W SON-T	RETRO50S	5/35	A	2700K	27	No Control	N						
Braemar	BRA			70W SON-T	RETRO70S												
Cradle 450	CR4			100W SON-T	RETRO100S												
Dover 450	DO4			150W SON-T	RETRO150S	10/10	B			70lux PEC	C						
Dover 500	DO5											250W SON-T	RETRO250S	35lux PEC	U		
DW400	DW4																
Ely A	ELA			50W Metal Halide	RETRO50MH					31/35	C					Part night switch	PS
Ely B	ELB											70W Metal Halide	RETRO70MH	Part night dim	PD		
Ely C	ELV																
Excel 450	EX4	150W Metal Halide	RETRO150MH	CMS Mayflower	CM												
Excel 500	EX5					250W Metal Halide	RETRO250MH	CMS Telensa	CT								
Henley	HEN											45W Cosmopolis	RETRO45W	CMS Zodion Vizion	CZ		
Iffley	IFF	60W Cosmopolis	RETRO60W														
Knightsbridge Street	KNS			90W Cosmopolis	RETRO90W												
Lancaster Street	LAS					140W Cosmopolis	RETRO140W										
Newport	NEW																
Polar 450	PO4																
Polar 500	PO5																
Portland	POR																
Rio 450	R14																
Rio 500	R15																
Salisbury	SAL																
Strand A+	STP																
Strand A	STA																
Strand B	STB																
Strand C	STC																
Stratum 450	ST4																
Stratum 500	ST5																
Warwick	WAR																
Waterford	WAT																
Westminster Street	WES																
Windsor Avenue	WIA																
Windsor Street	WIS																
York	YOR																

Example: WIS 01 RETRO70S B 27 PD

To specify an LED light engine for an existing product, please select an option from each of the columns, numbered above:

To specify an LED light engine for an existing product, please state:

1. The name of the Lantern i.e. for a Windsor Street WIS

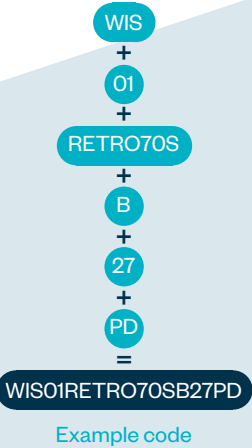
2. Light engine i.e. 01 (for our Performance engine)

3. Lamp type being replaced, prefixed by RETRO i.e. RETRO70S

4. Diamond Optic® being replaced i.e. B

5. Required colour temperature i.e. 27 (for 2700K)

6. Control i.e. part-night dim is PD



For help specifying our LED light engines please call our lighting design team on 01992 474600

Why choose us?

- British manufacturer
- Over 40 years' experience
- Reliable, performance engineered solutions



Our LED solutions have been fully photometrically tested within our luminaires, using our in-house goniophotometer and state-of-the-art integrating sphere.

Our integrating sphere gives us accurate lumen output data as well as complete spectral analysis so we understand not only the amount, and distribution of light, but the quality of light that our products deliver. Data performance shown is therefore the actual luminaire performance delivered.



Our LED light engine options are fully thermally tested within our lanterns to guarantee the long life of the LEDs and drivers.

For up-to-date photometry, please visit [dwwindsor.com](http://dwwindsor.com)

# LED light engine

## Features:

4 light engine options available, from high performance LED to our low glare, comfort option

Enables conversion of existing HID lanterns to LED

Upgrade DW Windsor lanterns (up to 20 years old)

With Diamond+ technology

Quick and simple to install on-site

## Light engine options:

Performance

Performance CoB

Comfort CoB

Gas effect

## Diamond+ Optical Control:

Our Diamond+ gives you the ability to replace your existing lighting distribution through a range of specially designed optics that mimic our original Diamond Optic® reflector system. Within the retrofit solutions, we will provide the Diamond+ optic which most closely matches your current distribution. For guidance selecting an appropriate solution please contact our lighting design team.

Diamond+ A Optic – Wide Road (A1, A2, A3, A4, A5)



Diamond+ B Optic – Footpath (B1, B2, B3, B4, B5)



Diamond+ C Optic – Area (C1, C2, C3, C4, C5)



Diamond+ D Optic – Standard Road (D1, D2, D3, D4, D5)



Diamond+ Z Optic – Pedestrian Crossings (ZL, ZR, ZF)



## Light Source:

Performance: LUXEON TX

Performance CoB: Citizen

Comfort CoB: Citizen

Gas effect: LUXEON Rebel

## Lifetime Prediction:

Performance: L80 >100,000 hours

Performance CoB: L80 >100,000 hours

Comfort CoB: L80 >100,000 hours

Gas Effect: L70 >60,000 hours

## Colour Temperature:

2700K (very warm white)

3000K (warm white)

4000K (neutral white)

## Colour Rendering Index:

See pages 1 / 2

## Light Engine Efficacy:

Performance: up to 115lm/W

Performance CoB: up to 130lm/W

Comfort CoB: up to 90lm/W

Gas Effect: up to 62lm/W

## Drive Current:

From 200mA - 1000mA

## S/P Ratio:

1.2 (2700/3000K)

1.5 (4000K)

## Control:

CLO: Constant Light Output enabled - for energy savings and dependable light throughout the lifetime of the luminaire

Switch: On / off through conventional PEC, Miniature or Nema

Dim: Factory set dimmed / customer specified dimming

CMS: Compatible with all available CMS systems

## Installation and Maintenance:

Can be installed into any DW Windsor lamped products (up to 20 years old)

No electrical wiring needed on installation; all connections are by plug and socket

Download UMS codes from [dwwindsor.com](http://dwwindsor.com)

Due to continuous product development the details within this brochure, including performance and energy savings will continually improve and are subject to change at any time. For the most up-to-date information please contact us or visit [dwwindsor.com](http://dwwindsor.com)

## DW Windsor

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