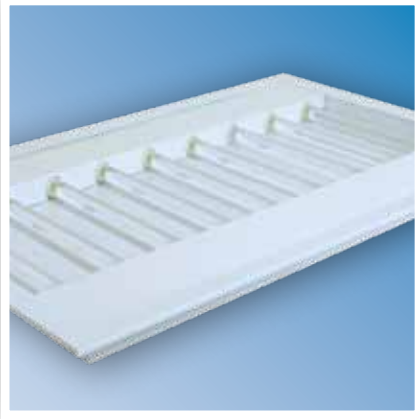


Patented, End Lit Rod

LED Lighting

Finally, a true replacement for the fluorescent tube



WAVEGUIDE LIGHTING



About Us

Waveguide Lighting offers a comprehensive range of LED lighting products for commercial, industrial and street lighting applications.

Many of our products utilise our patented end lit rod technology, which is highly energy efficient but gives superior light output and uniformity compared to other LED products. We also offer a range of heavier duty lights for outdoor applications such as sports facilities, car parks, tunnels and street lighting.

Our extensive range of standard products should satisfy most requirements but we can also provide made-to-measure solutions if your application is a little bit special. Whatever you choose, we'll typically save around 70% on your current energy costs.



Up to...



70%
Energy Savings



Improved
Environment



Increased Safety
and Security



Reduced
Maintenance



Increased
Revenue
for Retail installations

Products



Indoor

- High Spec Offices
- Classrooms
- Function Rooms
- Retail Stores
- Datacentres



Low and High Bay

- Retail Outlets
- Garden Centres
- Distribution Facilities
- Canopies and Forecourts
- Car Parks
- Tunnels
- Industrial and Manufacturing
- Perimeter Lighting
- Walkway Illumination





Our Expertise

Our team of lighting designers have over 40 years' experience in the lighting market and are available to help our customers with product selection, lighting calculations and product training. Our purpose built testing and measurement facilities allow us to develop ever more efficient products and provide all the necessary technical and design information demanded by our customers.

Based near Manchester in the UK, our manufacturing facility offers fast lead times to ensure your project is completed on time.



Flood

- Sports Facilities
- Outdoor Car Parks
- Campus and Buildings



Controls

- Time Clocks
- Daylight Sensors, PIR/ Microwave Sensors
- Dimmers
- Intelligent Controls

Street

- Street Lighting
- Bike and Footpaths
- Car Parks
- Squares and Pedestrian Areas
- Garden Centres



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Product**Data**

ProductData

WAVEGUIDE LIGHTING

WaveStar Louvered



WaveStar Louvered



Waveguide Lighting's **WaveStar** luminaire is the perfect solution for high specification offices, classrooms and function rooms where glare should be minimal. The WaveStar delivers clean, bright light to create the highest levels of uniform illumination.

WaveStar utilises Waveguide Lighting's unique patented waveguide technology, which shines the light sideways from the LED into a solid, cast acrylic rod and then reflects the light outwards into the area to be lit.

Waveguide's **WaveStar** luminaire has been expertly designed to look like a T5 tube, and like all Waveguide products, offers lighting designers a high degree of versatility.

The lumen output is determined by the drive current whilst beam angles are determined by reflector width and angle. The drive currents are extremely benign – generating very little heat at the LED/PCB junction – achieving very high efficacies and LED extended lifetimes.

LDT files are available in standard drive currents, plus reflector specifications and bespoke solutions can be supplied on request.

■ SPECIFICATIONS

Dimensions: 595 x 595 x 60mm

Weight: 2.3kg

Power: 16-43W

Lumens per circuit watt: 85.2 @ 286 mA

Total lumen range: 1317 - 3661

LED Type: Cree

Colour Rendering: 85 CRI as standard for internal applications

Colour Temperature: 4000-5700K as standard for internal applications

Product Type: Recessed

Material: Mild Steel

Mounting Options: Hooks, Surface, Ceiling

Emergency Options: Integrated emergency options are available

Intelligent controls: Manual dimmers, PIR sensors, Photocells, Voltage Optimisation etc

LED drive current: 100 - 320mA

Ambient Temperature: -20 to +35C (for temps. outside this range please contact us)

Cut-off angle: 65 degrees



■ BENEFITS

Efficiency: Can achieve up to 80% energy savings compared to traditional fittings

Low Maintenance: Reducing costs and disruption of routine maintenance

LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM79, LM80 and TM21

Light Distribution: Uniform distribution with a typical SHR of 1.5:1. Other beam spreads are available on request

Reliability: Drive currents are kept below 0.32A thus ensuring junction temperatures are kept below 55C for longevity and reliability

PSU Specifications: 220-240 Volts AC DALI/DMX/KNX options available

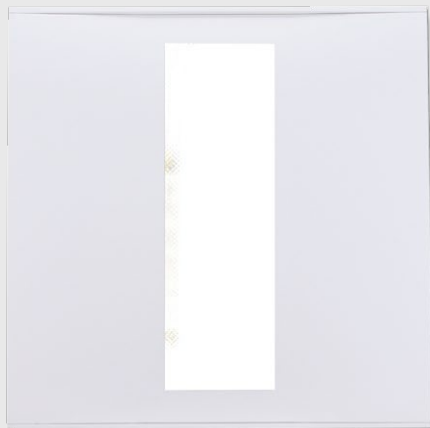
Low Heat: The excellent efficacy, lm/W, means maximum light in the space for the least amount of heat

WAVEGUIDE LIGHTING

WaveStar Diffused



Wavetar Diffused



Waveguide Lighting's **WaveStar** luminaire is the perfect solution for high specification offices, classrooms and function rooms where glare should be minimal. The **WaveStar** delivers clean, bright light to create the highest levels of uniform illumination.

WaveStar utilises Waveguide Lighting's unique patented waveguide technology, which shines the light sideways from the LED into a solid, cast acrylic rod and then reflects the light outwards into the area to be lit.

Waveguide's **WaveStar** luminaire has been expertly designed to look like a T5 tube, and like all Waveguide products, offers lighting designers a high degree of versatility.

The lumen output is determined by the drive current whilst beam angles are determined by reflector width and angle. The drive currents are extremely benign – generating very little heat at the LED/PCB junction – achieving very high efficacies and LED extended lifetimes.

LDT files are available in standard drive currents, plus reflector specifications and bespoke solutions can be supplied on request.

■ SPECIFICATIONS

Dimensions: 590 x 590 x 56mm

Weight: 2.8kg

Power: 16-41W

Lumens per circuit watt: 107 @ 286mA

Total lumens range: 1507- 4285

LED Type: Cree

Colour Rendering: 85 CRI as standard for internal applications

Colour Temperature: 4000-5700K as standard for internal applications

Product Type: Recessed

Material: Mild Steel with an acrylic cover

Mounting Options: Hooks, Surface, Ceiling

Emergency Options: Integrated emergency options are available

Intelligent controls: Manual dimmers, PIR sensors, Photocells, Voltage Optimisation etc

LED drive current: 100 - 320mA

Ambient Temperature: -20 to +35C (for temps. outside this range please contact us)



■ BENEFITS

Efficiency: Can achieve up to 80% energy savings compared to traditional fittings

Low Maintenance: Reducing costs and disruption of routine maintenance

LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM79, LM80 and TM21

Light Distribution: Uniform distribution with a typical SHR of 1.5:1. Other beam spreads are available on request

Reliability: Drive currents are kept below 0.32A thus ensuring junction temperatures are kept below 55C for longevity and reliability

PSU Specifications: 220-240 Volts AC DALI/DMX/KNX options available

Low Heat: The excellent efficacy, lm/W, means maximum light in the space for the least amount of heat

WAVEGUIDE LIGHTING

WaveStar Curved



WaveStar Curved



Waveguide Lighting's **WaveStar** luminaire is the perfect solution for high specification offices, classrooms and function rooms where glare should be minimal. The WaveStar delivers clean, bright light to create the highest levels of uniform illumination.

WaveStar utilises Waveguide Lighting's unique patented waveguide technology, which shines the light sideways from the LED into a solid, cast acrylic rod and then reflects the light outwards into the area to be lit.

Waveguide's **WaveStar** luminaire has been expertly designed to look like a T5 tube, and like all Waveguide products, offers lighting designers a high degree of versatility.

The lumen output is determined by the drive current whilst beam angles are determined by reflector width and angle. The drive currents are extremely benign – generating very little heat at the LED/PCB junction – achieving very high efficacies and LED extended lifetimes.

LDT files are available in standard drive currents, plus reflector specifications and bespoke solutions can be supplied on request.

SPECIFICATIONS

Dimensions: 590 x 590 x 56mm

Weight: 2.3kg

Power: 16-43W

Lumens per circuit watt: 100.4 @ 286mA

Total lumen range: 1513 - 4316

LED Type: Cree

Colour Rendering: 85 CRI as standard for internal applications

Colour Temperature: 4000-5700K as standard for internal applications

Product Type: Recessed

Material: Mild Steel with an acrylic cover

Mounting Options: Hooks, Surface, Ceiling

Emergency Options: Integrated emergency options are available

Intelligent controls: Manual dimmers, PIR sensors, Photocells, Voltage Optimisation etc

LED drive current: 100 - 320mA

Ambient Temperature: -20 to +35C (for temps. outside this range please contact us)



BENEFITS

Efficiency: Can achieve up to 80% energy savings compared to traditional fittings

Low Maintenance: Reducing costs and disruption of routine maintenance

LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM79, LM80 and TM21

Light Distribution: Uniform distribution with a typical SHR of 1.5:1. Other beam spreads are available on request

Reliability: Drive currents are kept below 0.32A thus ensuring junction temperatures are kept below 55C for longevity and reliability

PSU Specifications: 220-240 Volts AC DALI/DMX/KNX options available

Low Heat: The excellent efficacy, lm/W, means maximum light in the space for the least amount of heat

WAVEGUIDE LIGHTING

StarFox203



StarFox203



The **StarFox** luminaire offers high quality uniformly distributed light for both internal and external applications that require a vapour proof enclosure.

The light engine is a direct LED replacement for 2ft to 6ft fluorescent tubes, and can be driven at a range of drive currents to increase energy savings without compromising on light quality. We offer a 2ft or 4ft option as standard and other lengths are available on request.

StarFox utilises Waveguide Lighting's unique patented waveguide technology, which shines the light sideways from the LED into a solid, cast acrylic rod and then reflects the light outwards into the area to be lit.

The lumen output is determined by the drive current whilst beam angles are determined by the reflector width and angle. The drive currents are extremely benign – generating very little heat at the LED/PCB junction – achieving very high efficacies and LED extended lifetimes.

The **StarFox** range is expertly designed to replace 35W T5 fluorescents with 18W. It can also be used to replace twin 58W fluorescents with 43W, and single fluorescents with 25W.

LDT files are available in standard drive currents, plus reflector specifications and bespoke solutions can be supplied on request.

■ SPECIFICATIONS

Dimensions: 1269 x 130 x 100mm

Weight: 3.5kg

Power: 65W

Lumens per circuit watt: 118.6 @ 286mA

Total lumens emitted by luminaire: 7707 @ 286mA

LED Type: Cree

Colour Rendering: 75 CRI as standard for external applications

Colour Temperature: 4000-5700K as standard for external applications

Mounting Options: Hooks, Surface, Ceiling

Emergency Options: Integrated emergency options are available

Intelligent controls: Manual dimmers, PIR sensors, Photocells, Voltage Optimisation etc

LED drive current: 286mA

Ambient Temperature: -20 to +35C (for temps. outside this range please contact us)

IP Rating: 66

Connector: Rapid fit available



■ BENEFITS

Efficiency: Can achieve up to 80% energy savings compared to traditional fittings

Low Maintenance: Reducing costs and disruption of routine maintenance

LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM79, LM80 and TM21

Light Distribution: Uniform distribution with a typical SHR of 1.5:1. Other beam spreads are available on request

Reliability: Drive currents are kept below 0.32A thus ensuring junction temperatures are kept below 55C for longevity and reliability

PSU Specifications: 220-240 Volts AC DALI/DMX/KNX options available

Low Heat: The excellent efficacy, lm/W, means maximum light in the space for the least amount of heat

WAVEGUIDE LIGHTING

StarFox202



StarFox202



The **StarFox** luminaire offers high quality uniformly distributed light for both internal and external applications that require a vapour proof enclosure.

The light engine is a direct LED replacement for 2ft to 6ft fluorescent tubes, and can be driven at a range of drive currents to increase energy savings without compromising on light quality. We offer a 2ft or 4ft option as standard and other lengths are available on request.

StarFox utilises Waveguide Lighting's unique patented waveguide technology, which shines the light sideways from the LED into a solid, cast acrylic rod and then reflects the light outwards into the area to be lit.

The lumen output is determined by the drive current whilst beam angles are determined by the reflector width and angle. The drive currents are extremely benign – generating very little heat at the LED/PCB junction – achieving very high efficacies and LED extended lifetimes.

The **StarFox** range is expertly designed to replace 35W T5 fluorescents with 18W. It can also be used to replace twin 58W fluorescents with 43W, and single fluorescents with 25W.

LDT files are available in standard drive currents, plus reflector specifications and bespoke solutions can be supplied on request.

■ SPECIFICATIONS

Dimensions: 1269 x 130 x 100mm

Weight: 3kg

Power: 44W

Lumens per circuit watt: 118.6 @ 286mA

Total lumens emitted by luminaire: 5218 @ 286mA

LED Type: Cree

Colour Rendering: 75 CRI as standard for external applications

Colour Temperature: 4000-5700K as standard for external applications

Mounting Options: Hooks, Surface, Ceiling

Emergency Options: Integrated emergency options are available

Intelligent controls: Manual dimmers, PIR sensors, Photocells, Voltage Optimisation etc

LED drive current: 100 - 320mA

Ambient Temperature: -20 to +35C (for temps. outside this range please contact us)

IP Rating: 66

Connector: Rapid fit available



■ BENEFITS

Efficiency: Can achieve up to 80% energy savings compared to traditional fittings

Low Maintenance: Reducing costs and disruption of routine maintenance

LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM79, LM80 and TM21

Light Distribution: Uniform distribution with a typical SHR of 1.5:1. Other beam spreads are available on request

Reliability: Drive currents are kept below 0.32A thus ensuring junction temperatures are kept below 55C for longevity and reliability

PSU Specifications: 220-240 Volts AC DALI/DMX/KNX options available

Low Heat: The excellent efficacy, lm/W, means maximum light in the space for the least amount of heat

WAVEGUIDE LIGHTING

StarBlaze203



StarBlaze203



Waveguide Lighting's powerful **StarBlaze** solution provides high quality, uniformly distributed light with energy savings of up to 80%. The **StarBlaze** delivers clean, bright light to create the highest levels of illumination.

It is the perfect solution for external applications such as garage canopies, tunnels, flood lighting or any external application of heights ranging between 4 and 20 metres. **StarBlaze** is recessed behind a fascia of polycarbonate, acrylic or toughened glass and is easy to clean. Its long lifespan also means it's extremely low maintenance.

The **StarBlaze** uses Total Internal Reflection, TIR, to transmit and direct the light – putting it exactly where you want it. The powerful CoB LED modules are located at each end of the solid, optical grade, acrylic tubes. This has the advantage that the LEDs are hidden from direct view, thus reducing glare. The light then travels down the tubes by total internal reflection which is an extremely efficient method of transmitting light. The light is “extracted” by strips of high reflectance white paint silkscreened onto the rear of the tubes. The width and shape of the extractors determines the angle of the beam so the light can be put directly to where it is needed.

The range is EU Energy rated A and achieves LG standard LUX levels. The light can be delivered in a variety of colour temperatures and the luminaire can be integrated with most controls.

■ SPECIFICATIONS

Dimensions: 651 X 651 X 90 mm

Weight: 6.7kg

Power: 66W

Lumens per circuit watt: 109 @ 286mA

Total lumens emitted by luminaire: 7220 @ 286mA

LED Type: Cree

Colour Rendering: 75 CRI as standard for external applications

Colour Temperature: 4000-5700K as standard for external applications

Product Type: Recessed

Mounting Options: Hooks, Surface, Ceiling

Emergency Options: Integrated emergency options are available

Intelligent controls: Manual dimmers, PIR sensors, Photocells, Voltage Optimisation etc

LED drive current: 100 - 320mA

Ambient Temperature: -20 to +35C (for temps. outside this range please contact us)

IP Rating: 65



■ BENEFITS

Efficiency: Can achieve up to 80% energy savings compared to traditional fittings

Low Maintenance: Reducing costs and disruption of routine maintenance

LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM79, LM80 and TM21

Light Distribution: Uniform distribution with a typical SHR of 1.5:1. Other beam spreads are available on request

Reliability: Drive currents are kept below 0.32A thus ensuring junction temperatures are kept below 55C for longevity and reliability

PSU Specifications: 220-240 Volts AC DALI/DMX/KNX options available

Low Heat: The excellent efficacy, lm/W, means maximum light in the space for the least amount of heat

WAVEGUIDE LIGHTING

StarBlaze202



StarBlaze202



Waveguide Lighting's powerful **StarBlaze** solution provides high quality, uniformly distributed light with energy savings of up to 80%. The **StarBlaze** delivers clean, bright light to create the highest levels of illumination.

It is the perfect solution for external applications such as garage canopies, tunnels, flood lighting or any external application of heights ranging between 4 and 20 metres. **StarBlaze** is recessed behind a fascia of polycarbonate, acrylic or toughened glass and is easy to clean. Its long lifespan also means it's extremely low maintenance.

The **StarBlaze** uses Total Internal Reflection, TIR, to transmit and direct the light – putting it exactly where you want it. The powerful CoB LED modules are located at each end of the solid, optical grade, acrylic tubes. This has the advantage that the LEDs are hidden from direct view, thus reducing glare. The light then travels down the tubes by total internal reflection which is an extremely efficient method of transmitting light. The light is “extracted” by strips of high reflectance white paint silkscreened onto the rear of the tubes. The width and shape of the extractors determines the angle of the beam so the light can be put directly to where it is needed.

The range is EU Energy rated A and achieves LG standard LUX levels. The light can be delivered in a variety of colour temperatures and the luminaire can be integrated with most controls.

SPECIFICATIONS

Dimensions: 651 X 651 X 90 mm

Weight: 6.7kg

Power: 43W

Lumens per circuit watt: 109 @ 286mA

Total lumens emitted by luminaire: 4670 @ 286mA

LED Type: Cree

Colour Rendering: 75 CRI as standard for external applications

Colour Temperature: 4000-5700K as standard for external applications

Product Type: Recessed

Mounting Options: Hooks, Surface, Ceiling

Emergency Options: Integrated emergency options are available

Intelligent controls: Manual dimmers, PIR sensors, Photocells, Voltage Optimisation etc

LED drive current: 100 - 320mA

Ambient Temperature: -20 to +35C (for temps. outside this range please contact us)

IP Rating: 65



BENEFITS

Efficiency: Can achieve up to 80% energy savings compared to traditional fittings

Low Maintenance: Reducing costs and disruption of routine maintenance

LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM79, LM80 and TM21

Light Distribution: Uniform distribution with a typical SHR of 1.5:1. Other beam spreads are available on request

Reliability: Drive currents are kept below 0.32A thus ensuring junction temperatures are kept below 55C for longevity and reliability

PSU Specifications: 220-240 Volts AC DALI/DMX/KNX options available

Low Heat: The excellent efficacy, lm/W, means maximum light in the space for the least amount of heat

WAVEGUIDE LIGHTING

LightStar205



LightStar205



Waveguide Lighting's **LightStar** range is ultra-efficient, making it one of the best energy-saving low bay products on the market. It is unrivalled in light quality, distribution and performance.

LightStar utilises waveguide technology, which shines the light sideways from the LED into a solid, cast acrylic rod and then reflects the light outwards into the area to be lit.

It is also incredibly versatile – allowing the client to select from a range of wattages (27 to 168w) to deliver between 100 to 123 lumens per circuit watt and providing a total lumen output of between 3,000 and 19,000.

The lumen output is determined by the drive current whilst beam angles are determined by the reflector width and angle. The beam angles are very precise and can be varied to suit every application. The drive currents are extremely benign – generating very little heat at the LED/PCB junction – achieving very high efficacies and LED extended lifetimes.

The product's very wide beam angles delivering high uniformity for ultra-low glare make the LightStar a 'best in class' proposition for low and mid-bay applications.

LDT files are available in standard drive currents, plus reflector specifications and bespoke solutions can be supplied on request.

■ SPECIFICATIONS

Dimensions: 590x 590x 37mm

Weight: 6.0kg

Power: 107-116W

Lumens per circuit watt: 121.1 @ 286mA

Total lumens emitted by luminaire: 12,958 @ 286mA

LED Type: Cree

Colour Rendering: 75-85 Dependent upon application

Colour Temperature: 4,000K - 5700K - other colour temperatures are available upon request

Mounting Options: Surface or Suspended

Emergency Options: Emergency options are available

Intelligent controls: 1-10v, DALI, DSI, KNX options available

LED drive current: 286 - 320mA

Ambient Temperature: -20 to +35C (for temperatures outside this range please contact to discuss)

IP Rating: 44 (66 available as an option)



■ BENEFITS

Efficiency: Can achieve up to 80% energy savings compared to traditional fittings

Low Maintenance: Reducing costs and disruption of routine maintenance

LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM79, LM80 and TM21

Light Distribution: Uniform distribution with a typical SHR of over 1.5:1. Other beam spreads are available on request

Reliability: Drive currents are kept below 0.32A ensuring junction temperatures are typically below 65oC for longevity & reliability

PSU Specifications: 220-240 Volts AC DALI/DMX/KNX, 90-305 VAC options available

Low Heat: All MHA luminaires are driven far below manufacturer's operating specifications.

WAVEGUIDE LIGHTING

LightStar204



LightStar204



Waveguide Lighting's **LightStar** range is ultra-efficient, making it one of the best energy-saving low bay products on the market. It is unrivalled in light quality, distribution and performance.

LightStar utilises waveguide technology, which shines the light sideways from the LED into a solid, cast acrylic rod and then reflects the light outwards into the area to be lit.

It is also incredibly versatile – allowing the client to select from a range of wattages (27 to 168w) to deliver between 100 to 123 lumens per circuit watt and providing a total lumen output of between 3,000 and 19,000.

The lumen output is determined by the drive current whilst beam angles are determined by the reflector width and angle. The beam angles are very precise and can be varied to suit every application. The drive currents are extremely benign – generating very little heat at the LED/PCB junction – achieving very high efficacies and LED extended lifetimes.

The product's very wide beam angles delivering high uniformity for ultra-low glare make the LightStar a 'best in class' proposition for low and mid-bay applications.

LDT files are available in standard drive currents, plus reflector specifications and bespoke solutions can be supplied on request.

■ SPECIFICATIONS

Dimensions: 590x 590x 37mm

Weight: 5.8kg

Power: 87-94W

Lumens per circuit watt: 120.0 @ 286mA

Total lumens emitted by luminaire: 10,439 @ 286mA

LED Type: Cree

Colour Rendering: 75-85 Dependent upon application

Colour Temperature: 4,000K - 5700K - other colour temperatures are available upon request

Mounting Options: Surface or Suspended

Emergency Options: Emergency options are available

Intelligent controls: 1-10v, DALI, DSI, KNX options available

LED drive current: 286 - 320mA

Ambient Temperature: -20 to +35C (for temperatures outside this range please contact to discuss)

IP Rating: 20 (66 available as an option)



■ BENEFITS

Efficiency: Can achieve up to 80% energy savings compared to traditional fittings

Low Maintenance: Reducing costs and disruption of routine maintenance

LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM79, LM80 and TM21

Light Distribution: Uniform distribution with a typical SHR of over 1.5:1. Other beam spreads are available on request

Reliability: Drive currents are kept below 0.32A ensuring junction temperatures are typically below 65oC for longevity & reliability

PSU Specifications: 220-240 Volts AC DALI/DMX/KNX, 90-305 VAC options available

Low Heat: All MHA luminaires are driven far below manufacturer's operating specifications.

WAVEGUIDE LIGHTING

LightStar 203



LightStar203



Waveguide Lighting's **LightStar** range is ultra-efficient, making it one of the best energy-saving low bay products on the market. It is unrivalled in light quality, distribution and performance.

LightStar utilises waveguide technology, which shines the light sideways from the LED into a solid, cast acrylic rod and then reflects the light outwards into the area to be lit.

It is also incredibly versatile – allowing the client to select from a range of wattages (27 to 168w) to deliver between 100 to 123 lumens per circuit watt and providing a total lumen output of between 3,000 and 19,000.

The lumen output is determined by the drive current whilst beam angles are determined by the reflector width and angle. The beam angles are very precise and can be varied to suit every application. The drive currents are extremely benign – generating very little heat at the LED/PCB junction – achieving very high efficacies and LED extended lifetimes.

The product's very wide beam angles delivering high uniformity for ultra-low glare make the LightStar a 'best in class' proposition for low and mid-bay applications.

LDT files are available in standard drive currents, plus reflector specifications and bespoke solutions can be supplied on request.

■ SPECIFICATIONS

Dimensions: 590x 590x 37mm

Weight: 5.6kg

Power: 62-69W

Lumens per circuit watt: 123.2 @ 286mA

Total lumens emitted by luminaire: 7,635 @ 286mA

LED Type: Cree

Colour Rendering: 75-85 Dependent upon application

Colour Temperature: 4,000K - 5700K - other colour temperatures are available upon request

Mounting Options: Surface or Suspended

Emergency Options: Emergency options are available

Intelligent controls: 1-10v, DALI, DSI, KNX options available

LED drive current: 286 - 320mA

Ambient Temperature: -20 to +35C (for temperatures outside this range please contact to discuss)

IP Rating: 20 (66 available as an option)



■ BENEFITS

Efficiency: Can achieve up to 80% energy savings compared to traditional fittings

Low Maintenance: Reducing costs and disruption of routine maintenance

LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM79, LM80 and TM21

Light Distribution: Uniform distribution with a typical SHR of over 1.5:1. Other beam spreads are available on request

Reliability: Drive currents are kept below 0.32A ensuring junction temperatures are typically below 65oC for longevity & reliability

PSU Specifications: 220-240 Volts AC DALI/DMX/KNX, 90-305 VAC options available

Low Heat: All MHA luminaires are driven far below manufacturer's operating specifications.

WAVEGUIDE LIGHTING

LightStar202



LightStar202



Waveguide Lighting's **LightStar** range is ultra-efficient, making it one of the best energy-saving low bay products on the market. It is unrivalled in light quality, distribution and performance.

LightStar utilises waveguide technology, which shines the light sideways from the LED into a solid, cast acrylic rod and then reflects the light outwards into the area to be lit.

It is also incredibly versatile – allowing the client to select from a range of wattages (27 to 168w) to deliver between 100 to 123 lumens per circuit watt and providing a total lumen output of between 3,000 and 19,000.

The lumen output is determined by the drive current whilst beam angles are determined by the reflector width and angle. The beam angles are very precise and can be varied to suit every application. The drive currents are extremely benign – generating very little heat at the LED/PCB junction – achieving very high efficacies and LED extended lifetimes.

The product's very wide beam angles delivering high uniformity for ultra-low glare make the LightStar a 'best in class' proposition for low and mid-bay applications.

LDT files are available in standard drive currents, plus reflector specifications and bespoke solutions can be supplied on request.

■ SPECIFICATIONS

Dimensions: 590x 590x 37mm

Weight: 5.4g

Power: 27-46W

Lumens per circuit watt: 120.9 @ 286mA

Total lumens emitted by luminaire: 5160 @ 286mA

LED Type: Cree

Colour Rendering: 75-85 Dependent upon application

Colour Temperature: 4,000K - 5700K - other colour temperatures are available upon request

Mounting Options: Surface or Suspended

Emergency Options: Emergency options are available

Intelligent controls: 1-10v, DALI, DSI, KNX options available

LED drive current: 286 - 320mA

Ambient Temperature: -20 to +35C (for temperatures outside this range please contact to discuss)

IP Rating: 20 (66 available as an option)



■ BENEFITS

Efficiency: Can achieve up to 80% energy savings compared to traditional fittings

Low Maintenance: Reducing costs and disruption of routine maintenance

LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM79, LM80 and TM21

Light Distribution: Uniform distribution with a typical SHR of over 1.5:1. Other beam spreads are available on request

Reliability: Drive currents are kept below 0.32A ensuring junction temperatures are typically below 65oC for longevity & reliability

PSU Specifications: 220-240 Volts AC DALI/DMX/KNX, 90-305 VAC options available

Low Heat: All MHA luminaires are driven far below manufacturer's operating specifications.

WAVEGUIDE LIGHTING

FireStar203



FireStar203



The size of Waveguide Lighting's FireStar luminaire belies just how powerful its light engine is.

The **FireStar** provides the same light quality, power and efficiency as the StarBlaze but is beautifully engineered into a compact 350x350mm enclosure. Being smaller in size it is incredibly versatile – providing the perfect solution for external application such as canopy lighting, flood lighting, perimeters and walkways.

It is best suited to heights of between four and 20 meters and can be supplied in a variety of wattages to meet the precise light levels and uniformity you require.

The **FireStar** uses Total Internal Reflection, TIR, to transmit and direct the light – putting it exactly where you want it. The powerful CoB LED modules are located at each end of the solid, optical grade, acrylic tubes. This has the advantage that the LEDs are hidden from direct view, thus reducing glare. The light then travels down the tubes by total internal reflection which is an extremely efficient method of transmitting light. The light is “extracted” by strips of high reflectance white paint silkscreened onto the rear of the tubes. The width and shape of the extractors determines the angle of the beam so the light can be put directly to where it is needed.

The range is EU Energy rated A and achieves LG standard LUX levels.

SPECIFICATIONS

Dimensions: 350 x 350 x 70mm

Weight: 4.8kg

Power: 66W

Lumens per circuit watt: 106 @ 286mA

Total lumens emitted by luminaire: 6986 @ 286mA

LED Type: Cree

Colour Rendering: 75 CRI as standard for external applications

Colour Temperature: 5700K as standard for external applications – other colour temperatures are available upon request

Product Type: Recessed

Mounting Options: Recessed, Surface or Pendant

Emergency Options: Integrated emergency options are available

Intelligent controls: Manual dimmers, PIR sensors, Photocells, Voltage Optimisation etc

LED drive current: 100 - 320mA

Ambient Temperature: -20 to +35C (for temps. outside this range please contact us)

IP Rating: 67



BENEFITS

Efficiency: Can achieve up to 80% energy savings compared to traditional fittings

Low Maintenance: Reducing costs and disruption of routine maintenance

LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM79, LM80 and TM21

Light Distribution: Uniform distribution with a typical SHR of 1.5:1. Other beam spreads are available on request

Reliability: Drive currents are kept below 0.32A thus ensuring junction temperatures are kept below 55C for longevity and reliability

PSU Specifications: 220-240 Volts AC DALI/DMX/KNX options available

Low Heat: The excellent efficacy, lm/W, means maximum light in the space for the least amount of heat

WAVEGUIDE LIGHTING

FireStar202



FireStar202



The size of Waveguide Lighting's FireStar luminaire belies just how powerful its light engine is.

The **FireStar** provides the same light quality, power and efficiency as the StarBlaze but is beautifully engineered into a compact 350x350mm enclosure. Being smaller in size it is incredibly versatile – providing the perfect solution for external application such as canopy lighting, flood lighting, perimeters and walkways.

It is best suited to heights of between four and 20 meters and can be supplied in a variety of wattages to meet the precise light levels and uniformity you require.

The **FireStar** uses Total Internal Reflection, TIR, to transmit and direct the light – putting it exactly where you want it. The powerful CoB LED modules are located at each end of the solid, optical grade, acrylic tubes. This has the advantage that the LEDs are hidden from direct view, thus reducing glare. The light then travels down the tubes by total internal reflection which is an extremely efficient method of transmitting light. The light is “extracted” by strips of high reflectance white paint silkscreened onto the rear of the tubes. The width and shape of the extractors determines the angle of the beam so the light can be put directly to where it is needed.

The range is EU Energy rated A and achieves LG standard LUX levels.

■ SPECIFICATIONS

Dimensions: 350 x 350 x 70mm

Weight: 4.5kg

Power: 43W

Lumens per circuit watt: 104 @ 286mA

Total lumens emitted by luminaire: 4453 @ 286mA

LED Type: Cree

Colour Rendering: 75 CRI as standard for external applications

Colour Temperature: 5700K as standard for external applications – other colour temperatures are available upon request

Product Type: Recessed

Mounting Options: Recessed, Surface or Pendant

Emergency Options: Integrated emergency options are available

Intelligent controls: Manual dimmers, PIR sensors, Photocells, Voltage Optimisation etc

LED drive current: 100 - 320mA

Ambient Temperature: -20 to +35C (for temps. outside this range please contact us)

IP Rating: 67



■ BENEFITS

Efficiency: Can achieve up to 80% energy savings compared to traditional fittings

Low Maintenance: Reducing costs and disruption of routine maintenance

LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM79, LM80 and TM21

Light Distribution: Uniform distribution with a typical SHR of 1.5:1. Other beam spreads are available on request

Reliability: Drive currents are kept below 0.32A thus ensuring junction temperatures are kept below 55C for longevity and reliability

PSU Specifications: 220-240 Volts AC DALI/DMX/KNX options available

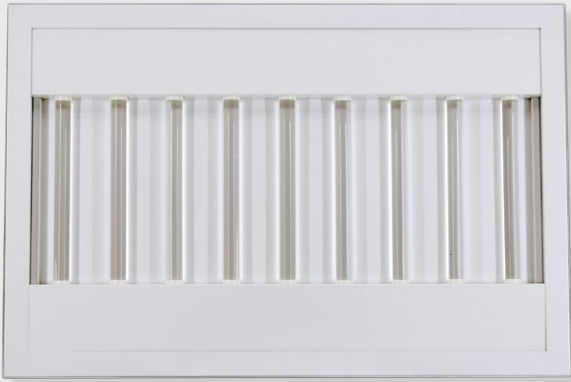
Low Heat: The excellent efficacy, lm/W, means maximum light in the space for the least amount of heat

WAVEGUIDE LIGHTING

BrightStar 209



BrightStar209



BrightStar utilises Waveguide Lighting's unique patented waveguide technology, which shines the light sideways from the LED into a solid, cast acrylic rod and then reflects the light outwards into the area to be lit.

The lumen output is determined by the drive current whilst beam angles are determined by the reflector width and angle. The beam angles are very precise and can be varied to suit every application. The drive currents are extremely benign – generating very little heat at the LED/PCB junction – achieving very high efficacies and LED extended lifetimes.

LDT files are available in standard drive currents, plus reflector specifications and bespoke solutions can be supplied on request.

■ SPECIFICATIONS

Dimensions: 715 x 475 x 42mm

Weight: 8.7kg

Power: 194W - 208W

Lumens per circuit watt: 123.4 @ 286mA

Total lumens emitted by luminaire: 23,128 @ 286mA

LED Type: Cree

Colour Rendering: 75-85 Dependent upon application

Colour Temperature: 4,000K - 5700K - other colour temperatures are available upon request

Mounting Options: Surface or Suspended

Emergency Options: Emergency options are available

Intelligent controls: 1-10v, DALI, DSI, KNX options available

LED drive current: 286 - 320mA

Ambient Temperature: -20 to +35C (for temperatures outside this range please contact to discuss)

IP Rating: 44 (66 available as an option)



■ BENEFITS

Efficiency: Can achieve up to 80% energy savings compared to traditional fittings

Low Maintenance: Reducing costs and disruption of routine maintenance

LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM79, LM80 and TM21

Light Distribution: Uniform distribution with a typical SHR of over 1.5:1. Other beam spreads are available on request

Reliability: Drive currents are kept below 0.32A ensuring junction temperatures are typically below 65oC for longevity & reliability

PSU Specifications: 220-240 Volts AC DALI/DMX/KNX, 90-305 VAC options available

Low Heat: All MHA luminaires are driven far below manufacturer's operating specifications.

WAVEGUIDE LIGHTING

BrightStar 208



BrightStar208



BrightStar utilises Waveguide Lighting's unique patented waveguide technology, which shines the light sideways from the LED into a solid, cast acrylic rod and then reflects the light outwards into the area to be lit.

The lumen output is determined by the drive current whilst beam angles are determined by the reflector width and angle. The beam angles are very precise and can be varied to suit every application. The drive currents are extremely benign – generating very little heat at the LED/PCB junction – achieving very high efficacies and LED extended lifetimes.

LDT files are available in standard drive currents, plus reflector specifications and bespoke solutions can be supplied on request.

■ SPECIFICATIONS

Dimensions: 640 x 716 x 85mm

Weight: 7.9kg

Power: 173-200W

Lumens per circuit watt: 118.2 @ 286mA

Total lumens emitted by luminaire: 20455.8 @ 286mA

LED Type: Cree

Colour Rendering: 75-85 Dependent upon application

Colour Temperature: 4,000K - 5700K - other colour temperatures are available upon request

Mounting Options: Surface or Suspended

Emergency Options: Emergency options are available

Intelligent controls: 1-10v, DALI, DSI, KNX options available

LED drive current: 286 - 320mA

Ambient Temperature: -20 to +35C (for temperatures outside this range please contact to discuss)

IP Rating: 44 (66 available as an option)



■ BENEFITS

Efficiency: Can achieve up to 80% energy savings compared to traditional fittings

Low Maintenance: Reducing costs and disruption of routine maintenance

LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM79, LM80 and TM21

Light Distribution: Uniform distribution with a typical SHR of over 1.5:1. Other beam spreads are available on request

Reliability: Drive currents are kept below 0.32A ensuring junction temperatures are typically below 65oC for longevity & reliability

PSU Specifications: 220-240 Volts AC DALI/DMX/KNX, 90-305 VAC options available

Low Heat: All MHA luminaires are driven far below manufacturer's operating specifications.

WAVEGUIDE LIGHTING

BrightStar 207



BrightStar207



BrightStar utilises Waveguide Lighting's unique patented waveguide technology, which shines the light sideways from the LED into a solid, cast acrylic rod and then reflects the light outwards into the area to be lit.

The lumen output is determined by the drive current whilst beam angles are determined by the reflector width and angle. The beam angles are very precise and can be varied to suit every application. The drive currents are extremely benign – generating very little heat at the LED/PCB junction – achieving very high efficacies and LED extended lifetimes.

LDT files are available in standard drive currents, plus reflector specifications and bespoke solutions can be supplied on request.

■ SPECIFICATIONS

Dimensions: 640 x 716 x 85mm

Weight: 7.6kg

Power: 151-200W

Lumens per circuit watt: 117.9 @ 286mA

Total lumens emitted by luminaire: 17925.1 @ 286mA

LED Type: Cree

Colour Rendering: 75-85 Dependent upon application

Colour Temperature: 4,000K - 5700K - other colour temperatures are available upon request

Mounting Options: Surface or Suspended

Emergency Options: Emergency options are available

Intelligent controls: 1-10v, DALI, DSI, KNX options available

LED drive current: 286 - 320mA

Ambient Temperature: -20 to +35C (for temperatures outside this range please contact to discuss)

IP Rating: 44 (66 available as an option)



■ BENEFITS

Efficiency: Can achieve up to 80% energy savings compared to traditional fittings

Low Maintenance: Reducing costs and disruption of routine maintenance

LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM79, LM80 and TM21

Light Distribution: Uniform distribution with a typical SHR of over 1.5:1. Other beam spreads are available on request

Reliability: Drive currents are kept below 0.32A ensuring junction temperatures are typically below 65oC for longevity & reliability

PSU Specifications: 220-240 Volts AC DALI/DMX/KNX, 90-305 VAC options available

Low Heat: All MHA luminaires are driven far below manufacturer's operating specifications.

WAVEGUIDE LIGHTING

BrightStar 206



BrightStar206



BrightStar utilises Waveguide Lighting's unique patented waveguide technology, which shines the light sideways from the LED into a solid, cast acrylic rod and then reflects the light outwards into the area to be lit.

The lumen output is determined by the drive current whilst beam angles are determined by the reflector width and angle. The beam angles are very precise and can be varied to suit every application. The drive currents are extremely benign – generating very little heat at the LED/PCB junction – achieving very high efficacies and LED extended lifetimes.

LDT files are available in standard drive currents, plus reflector specifications and bespoke solutions can be supplied on request.

■ SPECIFICATIONS

Dimensions: 640 x 716 x 85mm

Weight: 7.3kg

Power: 130-154W

Lumens per circuit watt: 121.4 @ 286mA

Total lumens emitted by luminaire: 15784 @ 286mA

LED Type: Cree

Colour Rendering: 75-85 Dependent upon application

Colour Temperature: 4,000K - 5700K - other colour temperatures are available upon request

Mounting Options: Surface or Suspended

Emergency Options: Emergency options are available

Intelligent controls: 1-10v, DALI, DSI, KNX options available

LED drive current: 286 - 320mA

Ambient Temperature: -20 to +35C (for temperatures outside this range please contact to discuss)

IP Rating: 44 (66 available as an option)



■ BENEFITS

Efficiency: Can achieve up to 80% energy savings compared to traditional fittings

Low Maintenance: Reducing costs and disruption of routine maintenance

LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM79, LM80 and TM21

Light Distribution: Uniform distribution with a typical SHR of over 1.5:1. Other beam spreads are available on request

Reliability: Drive currents are kept below 0.32A ensuring junction temperatures are typically below 65°C for longevity & reliability

PSU Specifications: 220-240 Volts AC DALI/DMX/KNX, 90-305 VAC options available

Low Heat: All MHA luminaires are driven far below manufacturer's operating specifications.

WAVEGUIDE LIGHTING



Bravo
Wallpack



Bravo Wallpack



Waveguide Lighting's **Bravo** luminaire is ultra-efficient, making it one of the best energy-saving low bay products on the market. It is unrivalled in light quality, distribution and performance.

Bravo utilises Waveguide Lighting's unique patented waveguide technology, which shines the light sideways from the LED into a solid, cast acrylic rod and then reflects the light outwards into the area to be lit.

LDT files are available in standard drive currents, plus reflector specifications and bespoke solutions can be supplied on request.

■ SPECIFICATIONS

Dimensions: 280 x 260 x 180mm

Weight: 3Kg

Power: 21-48w

Total lumens emitted by luminaire: 3278 @ 41w

LED Type: Cree

Colour Rendering: 75-85 Dependent upon application

Colour Temperature: 4,000K - 5700K - other colour temperatures are available upon request

Mounting Options: Wall

LED drive current: 286 - 320mA

Ambient Temperature: -20 to +35C (for temperatures outside this range please contact to discuss)

IP Rating: 65



■ BENEFITS

Efficiency: Can achieve up to 80% energy savings compared to traditional fittings

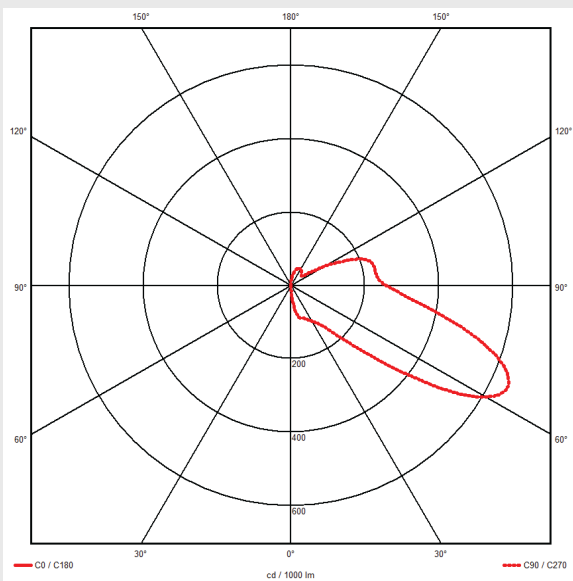
Low Maintenance: Reducing costs and disruption of routine maintenance

LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM79, LM80 and TM21

Light Distribution: Uniform distribution with a typical SHR of over 1.5:1. Other beam spreads are available on request

Reliability: Drive currents are kept below 0.32A ensuring junction temperatures are typically below 65°C for longevity & reliability

PSU Specifications: 220-240v



S2D2



Waveguide Lighting's **S2D2** luminaire is ultra-efficient, making it one of the best energy-saving low bay products on the market. It is unrivalled in light quality, distribution and performance.

S2D2 utilises Waveguide Lighting's unique patented waveguide technology, which shines the light sideways from the LED into a solid, cast acrylic rod and then reflects the light outwards into the area to be lit.

LDT files are available in standard drive currents, plus reflector specifications and bespoke solutions can be supplied on request.

SPECIFICATIONS

Dimensions: 276 x 276 x 97mm

Weight: 3Kg

Power: 21-48w

Total lumens emitted by luminaire: 3448 @ 43w

LED Type: Cree

Colour Rendering: 75-85 Dependent upon application

Colour Temperature: 4,000K - 5700K - other colour temperatures are available upon request

Mounting Options: Surface

Emergency Options: Emergency options are available with 3 hour battery life

ILED drive current: 286 - 320mA

Ambient Temperature: -20 to +35C (for temperatures outside this range please contact to discuss)

IP Rating: 54



BENEFITS

Efficiency: Can achieve up to 80% energy savings compared to traditional fittings

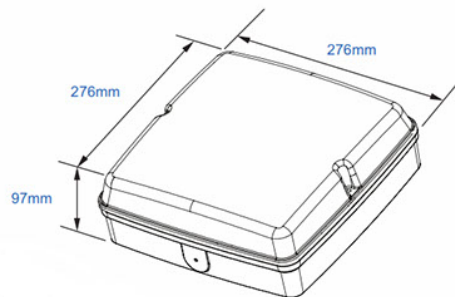
Low Maintenance: Reducing costs and disruption of routine maintenance

LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM79, LM80 and TM21

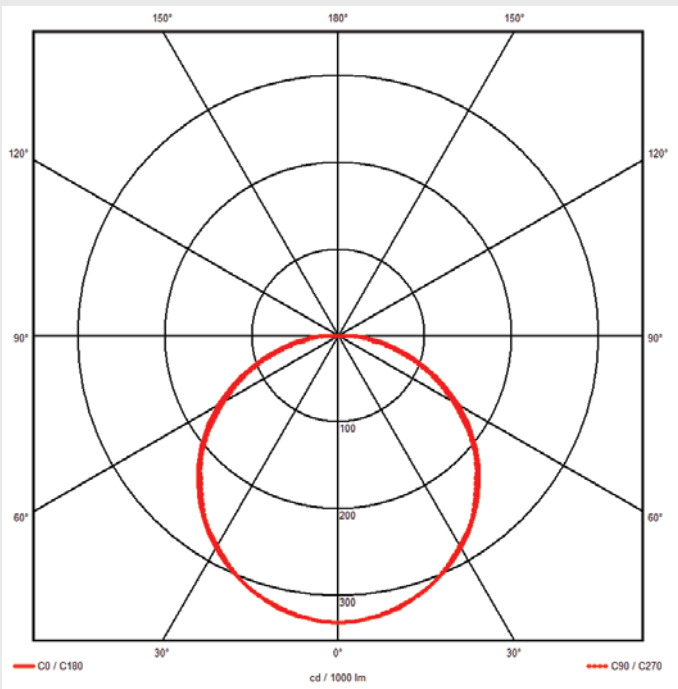
Light Distribution: Uniform distribution with a typical SHR of over 1.5:1. Other beam spreads are available on request

Reliability: Drive currents are kept below 0.32A ensuring junction temperatures are typically below 65°C for longevity & reliability

PSU Specifications: 220-240v



All photometric data supplied by Waveguide Lighting is in "Absolute" terms.



PlutoRange



Waveguide Lighting's powerful **PlutoRange** solution provides high quality, uniformly distributed light with energy savings of up to 80%. The **Pluto** delivers clean, bright light to create the highest levels of illumination.

It is the perfect solution for external flood lighting applications between 4 and 20 metres. **Pluto** is recessed behind a fascia of polycarbonate, acrylic or toughened glass and is easy to clean. Its long lifespan also means it's extremely low maintenance.

The **Pluto** uses Total Internal Reflection, TIR, to transmit and direct the light – putting it exactly where you want it. The powerful CoB LED modules are located at each end of the solid, optical grade, acrylic tubes. This has the advantage that the LEDs are hidden from direct view, thus reducing glare. The light then travels down the tubes by total internal reflection which is an extremely efficient method of transmitting light. The light is “extracted” by strips of high reflectance white paint silk screened onto the rear of the tubes. The width and shape of the extractors determines the angle of the beam so the light can be put directly to where it is needed.

LDT files are available in standard drive currents, plus reflector specifications and bespoke solutions can be supplied on request.

■ SPECIFICATIONS

Dimensions: 600 X 400 X 50 mm

Weight: 10kg

Power: 86 - 154W

Total lumens emitted by luminaire: 10,000 - 17,000

LED Type: Cree

Colour Rendering: 75

Colour Temperature: 4000-5700K

Mounting Options: Wall bracket, post top

Intelligent controls: PIR sensors, Photocells

LED drive current: 100 - 320mA

Ambient Temperature: -20 to +35C (for temps. outside this range please contact)

IP Rating: 65



■ BENEFITS

Efficiency: Can achieve up to 80% energy savings compared to traditional fittings

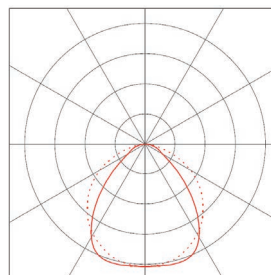
Low Maintenance: Reducing costs and disruption of routine maintenance

LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM79, LM80 and TM21

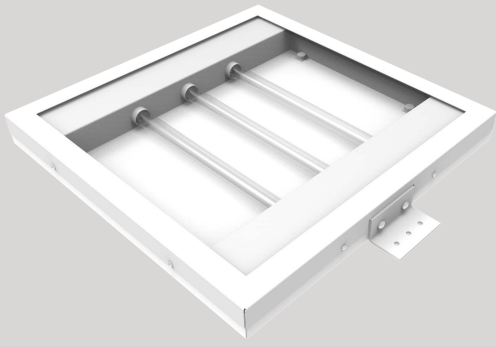
Light Distribution: Uniform distribution with a typical SHR of 1.5:1. Other beam spreads are available on request

Reliability: Drive currents are kept below 0.32A thus ensuring junction temperatures are kept below 55C for longevity and reliability

PSU Specifications: 220-240 Volts AC



Starshot



The size of Waveguide Lighting's Starshot luminaire belies just how powerful its light engine is.

The **Starshot** provides the same light quality, power and efficiency as the StarBlaze but is beautifully engineered into a compact 400x400mm enclosure. Being smaller in size it is incredibly versatile – providing the perfect solution for external application such as canopy lighting, flood lighting, perimeters and walkways.

It is best suited to heights of between four and 20 meters and can be supplied in a variety of wattages to meet the precise light levels and uniformity you require.

The **Starshot** uses Total Internal Reflection, TIR, to transmit and direct the light – putting it exactly where you want it. The powerful CoB LED modules are located at each end of the solid, optical grade, acrylic tubes. This has the advantage that the LEDs are hidden from direct view, thus reducing glare. The light then travels down the tubes by total internal reflection which is an extremely efficient method of transmitting light. The light is “extracted” by strips of high reflectance white paint silkscreened onto the rear of the tubes. The width and shape of the extractors determines the angle of the beam so the light can be put directly to where it is needed.

The range is EU Energy rated A and achieves LG standard LUX levels.

SPECIFICATIONS

Dimensions: 400 x 400 x 40 mm

Weight: 2 - 3 kg (dependent upon option chosen)

Power: 28-120W

Lumens per circuit watt: 118.09 @ 264mA

Total lumens emitted by luminaire: up to 13,000 at max

LED Type: Cree

Colour Rendering: 75 CRI as standard for external applications

Colour Temperature: 5700K as standard for external applications – other colour temperatures are available upon request

Product Type: Floodlight

Mounting Options: Surface, Wall mount (with additional Bracket).

Emergency Options: Integrated emergency options are available

Intelligent controls: Manual dimmers, PIR sensors, Photocells, Voltage Optimisation etc

LED drive current: 100 - 320mA

Ambient Temperature: -20 to +35C (for temps. outside this range please contact us)

IP Rating: 67



BENEFITS

Efficiency: Can achieve up to 80% energy savings compared to traditional fittings

Low Maintenance: Reducing costs and disruption of routine maintenance

LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM79, LM80 and TM21

Light Distribution: Uniform distribution with a typical SHR of 1.5:1. Other beam spreads are available on request

Reliability: Drive currents are kept below 0.32A thus ensuring junction temperatures are kept below 55C for longevity and reliability

PSU Specifications: 220-240 Volts AC DALI/DMX/KNX options available

Low Heat: The excellent efficacy, lm/W, means maximum light in the space for the least amount of heat


WAVEGUIDE LIGHTING

Street**Lite**

METEOR: SL201-RB / SL202-RB



Meteor Range

WATTAGE	STREET CLASS	CHARGE CODE	VISUAL
23W	P6/P5	41 0047 0015 100	
28W	P5/P4	41 0023 0036 100	
48W	P4	41 0028 0014 100	

Characteristics

 464	 220	 191	 5	 0.068m ²	 66	 IK10	 1
Length (mm)	Width (mm)	Height (mm)	Weight (kg) (max)	Windage	IP	Impact resistance*	Electrical class*

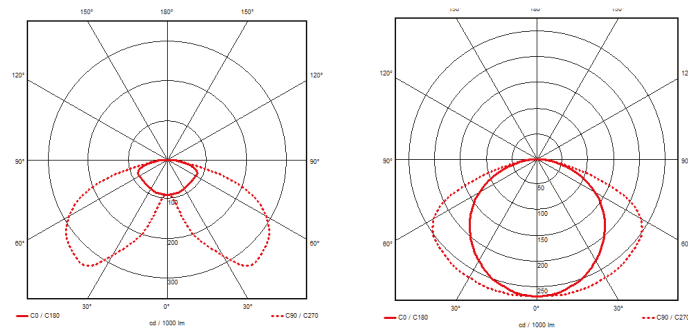
*According to IEC-EN60598 and IECEN62262

Photometrical Characteristics

Code	Power	Colour (K)	CRI	Lumen Output	Efficacy	BUG Rating
SL201A-RB-200200W8WB40-S318-XX	23	4000	>80	2261.55	98.33	B1 U1 G1
SL201A-RB-200200W8WB57-S318-XX	23	5700	>75	2692.32	117.06	B1 U1 G1
SL201A-RB-200200W8WC50-S318-XX	23	5000	>80	2487.7	108.16	B1 U1 G1
SL201A-RB-200200ZAB40-S318-XX	23	4000	>80	2372.21	103.14	B1 U1 G1
SL201A-RB-200200ZAB57-S318-XX	23	5700	>75	2824.06	122.79	B1 U1 G1
SL201A-RB-200200ZAC50-S318-XX	23	5000	>80	2610.43	113.50	B1 U1 G1
SL202A-RB-200200W8WB40-S190-XX	28	4000	>80	2979.91	106.43	B1 U1 G1
SL202A-RB-200200W8WB40-S318-XX	48	4000	>80	4533.07	94.44	B2 U1 G2
SL202A-RB-200200W8WB57-S190-XX	28	5700	>75	3547.51	126.70	B2 U1 G2
SL202A-RB-200200W8WB57-S318-XX	48	5700	>75	5396.51	112.43	B2 U1 G2
SL202A-RB-200200W8WC50-S190-XX	28	5000	>80	3283.75	117.28	B2 U1 G2
SL202A-RB-200200W8WC50-S318-XX	48	5000	>80	4997.54	104.12	B2 U1 G2
SL202A-RB-200200ZAB40-S190-XX	28	4000	>80	3005.75	107.35	B1 U1 G1
SL202A-RB-200200ZAB40-S318-XX	48	4000	>80	4606.98	95.98	B2 U0 G2
SL202A-RB-200200ZAB57-S190-XX	28	5700	>75	3578.27	127.80	B1 U1 G1
SL202A-RB-200200ZAB57-S318-XX	48	5700	>75	5484.5	114.26	B2 U0 G2
SL202A-RB-200200ZAC50-S190-XX	28	5000	>80	3310.29	118.22	B1 U1 G1
SL202A-RB-200200ZAC50-S318-XX	48	5000	>80	5078.48	105.80	B2 U0 G2

Polar Plots

All photometric data supplied by Waveguide Lighting is in “Absolute” terms i.e. nett of all losses.



Applications

- Urban roads and streets
- Residential streets
- Bike and footpaths
- Car parks
- Squares and pedestrian areas
- Parks



Features

- Cost effective, highly energy efficient lighting solution
- Energy savings of up to 80% compared to traditional light fittings
- Ultra low-glare, wide beam angles and high uniformity
- Bi-directional reflector minimises light levels under the column and maximises uniformity.
- Supplied with a 75,000 warranty, and has a minimum lifetime of 100,000 hours.
- Future proof – simple re-lamping exercise to replace light engine.
- Available as a retrofit solution for most lantern types.


WAVEGUIDE LIGHTING

Street**Lite**









ASTEROID : SL203-AS



Asteroid Street Light

WATTAGE	STREET CLASS	CHARGE CODE	VISUAL
69W	P3/P2	41 0070 0012 100	

Characteristics

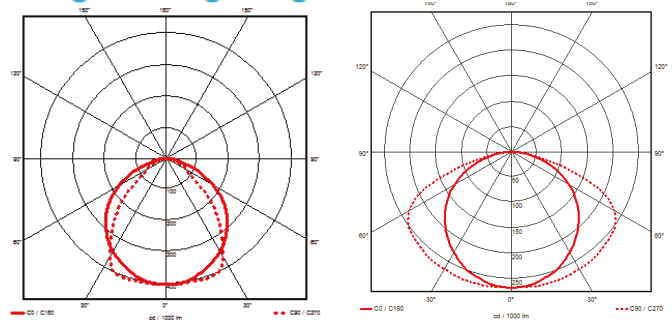
							
720	300	200	7	0.148m ²	66	IK08/IK10	1
Length (mm)	Width (mm)	Height (mm)	Weight (kg) (max)	Windage	IP	Impact resistance*	Electrical class*

*According to IEC-EN60598 and IECEN62262

Photometrical Characteristics

Code	Power	Colour (K)	CRI	Lumen Output	Effica y	BUG Rating
SL203A-AS-200200XAC50-S318-XX	69	5000	85	6661.23	96.54	B3 U1 G1
SL203A-AS-200200XAB40-S318-XX	69	4000	85	6169.66	89.42	B3 U1 G1
SL203A-AS-200200XAC50-S318-XX	69	5000	85	7276.95	105.46	B2 U1 G2
SL203A-AS-200200XAB40-S318-XX	69	4000	85	6738.21	97.66	B2 U1 G2

All photometric data supplied by Waveguide Lighting is in "Absolute" terms.



Applications

- Urban roads and streets
- Residential streets
- Bike and footpaths
- Car parks
- Squares and pedestrian areas
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Features

- Cost effective, highly energy efficient lighting solution
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- Supplied with a 75,000 warranty, and has a minimum lifetime of 100,000 hours.
- Future proof – simple re-lamping exercise to replace light engine.
- Available as a retrofit solution for most lantern types.

Benefit

- Low Maintenance: Reducing costs and disruption of routine maintenance
- LED Lifespan: 109k hours minimum to L70. Tested in accordance with LM80 and TM21
- Reliability: Drive currents are kept below 0.32A ensuring junction temperatures are kept below 55°C for longevity and reliability
- PSU Specifications: 220-240 Volts AC
- Low Heat: The excellent efficacy, lm/W, means maximum light in the space for the least amount of heat

Case Studies

Case Studies

Tout's Budgens

Retail - Key benefits:

- Energy savings
- High quality light uniformity
- 4500 Kelvin colour, 80 CRI LED
- Units contribute to store hygiene
- Do not generate heat so fridges don't have to work as hard



Tout's Budgens at Cheddar achieve energy savings of £89,539.

The Challenge:

Tout's Budgens asked our experts to devise an LED lighting scheme for the re-launch of their Church Street store which would showcase the fresh, quality produce they are famous for to best effect. They wanted an energy saving solution that would not only cut down on costly energy and maintenance bills but also help them meet their commitment to reduce Co2 emissions.

Our Solution:

Waveguide Lighting replaced traditional fluorescents with 84 of their unique TiLite fittings from its patented product range. A further 38 LED down lighters were installed in the store's Subway concession (over tables) and in the pharmacy areas. The new installation not only achieves high colour rendering of 80CRI with 4500 kelvin - the optimal colour for displaying produce - but has cut lighting energy costs and Co2 production by 65%. The installation has provided Tout's Budgens at Cheddar with energy savings of £89,539 over the product's lifetime. Equally importantly it saves 567 Co2 tonnes. The lighting system is also extremely low maintenance and will run for 60,000 hours of continuous use. In the case of Tout's Budgens at Cheddar - with an 18 hour a day operation - this means that the lights will not need replacing for nine years and will save an added £12,880 on routine maintenance. The lack of heat given off by LED lighting allows further energy savings to be made through reduced use of air conditioning systems. The machines do not have to work as hard to cool down additional heat in the shop, which is beneficial for open refrigerators. The store's security was improved with the removal of the old fluorescent lighting fittings. The LED lighting allows for a clearer identification of suspects and reduces flicker on CCTV monitors.

Testimonial:

"We chose to make the switch to LED lighting as part of our commitment to improving the customer experience and reducing the carbon footprint of the business. Waveguide Lighting provided a LED lighting solution that not only improves lighting levels but reduces our on-going energy costs and equivalent Co2 emissions. We are delighted with the results and are already getting positive feedback from our customers about how great the new store looks and the feel of the store created by the light. All our stores stock the best quality fresh produce from local growers and the LED lighting really enhances the appearance of our fruit and veg and butchery offering." *Philip Tout, owner Tout's Budgens*



Newcastle Airport

Outdoor Car Parks - Key benefits:

- Energy savings
- High quality light uniformity
- No pollution
- Intelligent controls



Newcastle Airport saves 70% on its car park lighting costs with Waveguide Lighting's LEDs.

The Challenge:

To create a LED fitting which would improve lighting levels, reliability, and reduce the on-going energy costs associated with the pre-existing lighting solution in Newcastle Airport's car parks. At the same time, to improve Newcastle Airport's customers' experience and reduce the carbon footprint of the business.

Our Solution:

We created a powerful bespoke solution to replace 150 watt SON fittings (170 watt with ballast) with our PL40 fitting - which is just 45 watts inclusive of ballast. The lights were fitted to 6.5 metre high poles spaced at 18-21 metres to provide Street Standard lighting, light levels and uniformity - giving an average in excess of 20 lux. The quality of the LED lights also improves safety and security at the airport by eradicating pockets of darkness and making CCTV footage clearer. Newcastle Airport is now saving 70% on its car park lighting costs. The new lighting will halve carbon emissions and cut energy emissions by up to 70%

Testimonial:

"The airport instructed Waveguide Lighting to design an LED fitting which would improve lighting levels, reliability, and reduce the on-going energy costs associated with the pre-existing lighting solution in the car parks. The result was a 45watts bespoke fitting which replaces the previous 150 watts SONS units. This will save the airport approximately 100 T/Co2 per year and significantly reduce the associated maintenance costs. The new lighting has been a great success. It was recently praised in our Park Mark Award assessment with positive feedback on its quality and how it has enhanced the area's safety and security features, which in turn will greatly benefit our customers. We are delighted with the installation."

Terry Clarke, Energy and Sustainability project manager at Newcastle Airport



Manchester Airport

Multi Storey - Key benefits:

- Energy savings
- High quality light uniformity
- No pollution
- Intelligent controls



Before



After

Manchester Airport (MAG) has achieved 60% energy savings in car park lighting thanks to our LED installation.

The Challenge:

External and Internal car parks are reliant on exceptional light quality for personal safety and security. MAG made a major commitment to reducing its carbon emissions from 2009 and has pledged to be the first airport group to reach its carbon neutral commitment by 2015. The Multi-Storey car parks in Terminal Two and Three were illuminated with 70watt and 100watt fittings – which just managed to achieve the BS Standard of 50-75 Lux Levels. The car parks are lit 24 hours per day, 365 days per year.

Our Solution:

We supplied 2000 LED light fittings to MAG's Terminal Two and Three car parks, which achieved an overall Co2 reduction of 3170 tonnes over the product life. Our designers engineered a fitting to retrofit into the SON gear trays. The Waveguide Lighting fitting is a 30watt unit that delivers 90-134 Lux levels. This fitting not only improved the level of lighting but also quality of lighting and uniformity. The installation achieved energy reduction targets and provided the simplest installation solution.

Testimonial:

"After several months of trialling numerous lighting technologies and designs, Waveguide's bespoke retrofit solution outshone all the others. We were particularly impressed with the speed and efficiency of Waveguide Lighting to design, fit and test their product to our stringent criteria. The end product has more than exceeded our expectations."

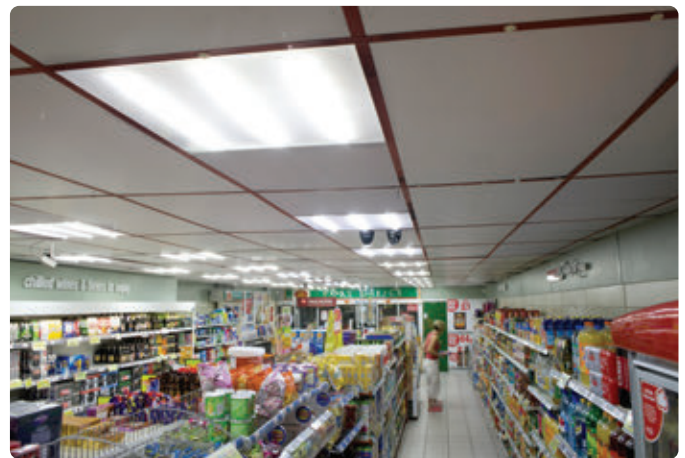
Jonathan Beswick, Manchester Airport project technician



SPAR (Widnes)

Retail - Key benefits:

- Energy savings
- High quality light uniformity
- 4500 Kelvin colour, 80 CRI LED
- Units contribute to store hygiene
- Do not generate heat so fridges don't have to work as hard



SPAR store improves retailing image and slashes energy bills by 79%.

The Challenge:

SPAR (Widnes) approached Waveguide Lighting to provide an energy saving solution that would not only cut down on costly energy and maintenance bills but also help enhance the appearance of the store and produce displayed within it. They also required a solution that would help them meet their commitment to hit carbon reduction targets.

Our Solution:

TiLite 30's were installed throughout the main shop floor, Post Office and back office rooms to replace fluorescent lights. PIR sensors were also fitted in back store rooms and other areas with low occupancy to further maximise energy savings. Overall energy consumption was reduced by 79%. With a product lifetime of nine years energy savings of £86,000 and carbon reduction of 210 Co2 Tonnes will be achieved. The lack of heat given off by LED lighting also allows further energy savings to be made through reduced use of air conditioning systems. The machines do not have to work as hard to cool down additional heat in the shop, which is beneficial for open refrigerators. High colour rendering enhances the colour of produce making it more appealing to customers.

The store's security was improved with the removal of the old fluorescent lighting fittings. The LED lighting allows for a clearer identification of suspects and reduces flicker on CCTV monitors.

Testimonial:

"I am very pleased with Waveguide Lighting's bespoke lighting system. The new LED lighting has improved visibility in the store and customers have commented on how much brighter and larger the store now appears. The new lights have created daylight indoors. Waveguide Lighting was helpful at every stage of the process and there was no disruption to my business as they were able to install the lighting outside of the store's opening hours." *Raj Dhillon, SPAR Widnes store owner*



North Devon Hospital Trust

Healthcare - Key benefits:

- Energy savings
- High quality light uniformity
- Intelligent controls eg: Night Watch system for NHS
- 4000 Kelvin colour, 80 CRI LED – precise colour needed for health care setting
- Significant contribution to infection control
- No maintenance costs



Waveguide Lighting helps slash hospital infection rates with new lighting.

The Challenge:

Light colour and uniformity is vital in a health care setting for the purposes of examining patients and also for patient comfort and safety. Lighting accounts for a significant proportion of a hospital's energy usage. At a time when the Government has set the NHS tough targets to reduce Co2 emissions, more energy efficient lighting is vital in saving money and reducing a Trust's carbon footprint. In addition, infection control is a crucial consideration. Changing light bulbs or fluorescent fittings means warm dust particles are released into the atmosphere.

Our Solution:

At North Devon Hospital's Trust (NDHT) we installed TiLite 20watt fittings into the corridors and reception areas and the TiLite 30watt into wards – replacing 72watt fittings throughout. The new lighting installation has reduced the hospital's overall carbon emissions by 354 Tonnes and saved 94, 866 KW/H and with the integration of dimmers energy savings have exceeded 75%. The TiLite provides high colour rendering of 4000 Kelvin - precisely the colour the NHS requires to provide perfect light quality for examining patients or the cleanliness of the facilities. Waveguide Lighting's TiLite product is maintenance free during its seven year life span (operating at 24 hours per day). It has no flicker, no hum, emits no UV or static and eradicates dust build-up. The installation created a more pleasant and healing environment where patients and staff are in control of ward lighting levels.

Testimonial:

"With the new lighting system we have made significant savings to our energy bills. This new lighting system from Waveguide has really made a difference to patients too. It has created a much better atmosphere for our patients and staff. Even light and less flicker is a huge improvement for those patients with sight problems. It is vital lighting units are designed to minimise hospital infection and the maintenance free aspect assists us in delivering better maintenance services with faster reaction times to the whole hospital." *Moses Warburton, re-development manager of NDHT*



Golborne Gym

Leisure - Key benefits:

- Energy savings
- High quality light uniformity
- Occupation health standards are met – no flicker / no hum
- Cleanliness of maintenance free sealed units
- Intelligent controls
- No heat generated under the lights



Golborne Gym achieves an 83% reduction in lighting energy costs and creates a pleasanter workout environment for members.

The Challenge:

We were asked to provide a solution that would combat large energy bills and slash Co2 emissions. At the same time, the owner of the gym wanted quality lighting that provided uniformity for a safe workout and remained cool (unlike the heat from fluorescent and halogen light fittings). The solution had to be retrofitted into the existing lighting apertures in the ceiling grid so gym equipment wasn't moved or damaged. CATII lighting was being used.

Our Solution:

TiLite 30watt fittings were installed throughout the gym's training rooms and reception area. PIR sensors were also fitted. An 83% reduction in energy was achieved and the lighting will be maintenance free life for 14 years. In addition to the financial and environmental savings gained from the installation, the illumination levels of the gym were significantly enhanced.

The gym is much cooler as a result of the new lighting, meaning a reduction in the use of air conditioning and a pleasanter training environment. The Gym also benefitted from a Carbon Trust interest free loan.

Testimonial:

"I am amazed by the clean, bright light, along with energy savings and resultant financial savings that we are achieving."

Mark Howlett, Gym owner, Golbourne.



Lakeland Bake

Food Production / Manufacturing - Key benefits:

- Energy savings
- High quality light uniformity
- Occupation health standards are met – no flicker / no hum
- Clean and maintenance free
- 4000 Kelvin colour, 80 CRI LED for precision working
- Intelligent controls



Lakeland Bake reduces lighting energy costs by 78% with a LED lighting installation.

The Challenge:

Lakeland's requirements were demanding. Cost savings from any energy efficient lighting solution had to be compelling in terms of return on investment and payback periods.

They wanted clean consistent light that would enhance the working environment and increase productivity.

As a British Retail Consortium Grade A accredited manufacturer a 'food safe', easy to clean, maintenance-free solution was essential. An improvement in external perimeter lighting was also required to increase security.

Our Solution:

We installed TiLite 30s internally and C60s externally - reducing energy consumption by 78% and delivering a saving of more than 60,000 kWh annually. This resulted in a staggering lifetime savings of £97,554.80 and a maintenance free life over 14 years, combined with payback period of 32 months.

Overall light quality was improved and all shadow pockets were eradicated. Also, because Lakeland Bake's Carbon Emissions were drastically reduced, they qualified for a Carbon Trust interest free loan to minimise the costs of converting to our low energy lighting.

Testimonial:

"Waveguide Lighting delivered a reduction in our energy costs of 78% and the installation looks outstanding. The lighting really is great and I am really pleased with the whole job from start to finish."

Peter Turner, director of Lakeland Bake.



Strensham Services

Garage Forecourts - Key benefits:

- Energy savings
- High quality light uniformity
- No pollution
- Intelligent controls



Waveguide Lighting has saved Motorway Service Area (MSA) operator Roadchef 70% on lighting costs at one of its biggest services.

The Challenge:

To refurbish the northbound petrol forecourt at Roadchef's Strensham motorway service area. The forecourt has been rebranded Texaco by Chevron, who own Texaco and has been using Waveguide Lighting's patented LED technology since September 2010.

Our Solution:

A total of 86 Under Canopy LED fittings (82 watts each) replaced an equivalent number of 250 watt Halides - reducing Co2 emissions by a staggering 585 tonnes over the product lifetime.

The metal Halides were one of the biggest overheads but our energy efficient LED solutions created cost savings of 70%.

The lights will run for 60,000 hours maintenance free. This means the Strensham installation will last for 12 years - based on average operation of 14 hours per day, seven days per week.

Waveguide's canopy range is available with both symmetrical and asymmetrical reflectors. This allows for flexible lighting design so light can be directed back into the forecourt instead of causing light pollution in external areas.

Other benefits include enhanced retailing opportunities through better illumination and an improved sense of safety and security for customers.

Testimonial:

"We are delighted with the result of Waveguide Lighting's recent installation, which will help us provide clean and consistent illumination in our refurbished forecourt. The quality of the LED lights also improves safety and security at the forecourt by making our CCTV much clearer. Waveguide Lighting completed the project quickly and with minimal disruption to our business, which, because of the volume of customers using Strensham, was essential." *Simon Tul, CEO of Roadchef*



Birmingham NEC

Leisure - Key benefits:

- Energy savings
- High quality light uniformity
- 4500 Kelvin colour, 80 CRI LED
- Occupation health standards are met – no flicker, even with dimming
- Cleanliness of maintenance free sealed units
- Intelligent controls
- No heat generated under the lights



Birmingham's NEC achieves 70% energy savings on lighting costs with the help of Waveguide Lighting.

The Challenge:

The NEC in Birmingham wanted to replace existing lighting in its Gallery and Concourse Suites and above the Skywalk with lighting that would improve the visitor experience while saving energy and lowering carbon emissions.

As an organisation the NEC has committed to a 60% reduction in carbon emissions by 2050. Reducing their lighting energy usage is a massive part of them achieving this target. The NEC has around 70,000 lights throughout its site - that equates to a fifth of their total energy usage.

That is a huge cost and finding solutions that improve light quality while reducing energy consumption is key. The lights also needed to be designed to be in keeping with the NEC's current branding and be able to dim to 7% in key areas without flicker.

Our Solution:

Waveguide Lighting installed 144 TiLites in the Concourse and Gallery Suites and 260 bespoke RodLites above the 400m long Skywalk that were designed to match the NEC's corporate branding and to be in-keeping with lighting finishes in other areas.

The 30watt RodLites replaced 54watt T8 Tubes (58-60watts with ballast) – immediately creating energy savings of 50%.

As the lights are on continuously software was installed that uses sensors to detect when the Skywalk area is empty and dims the RodLites to just 10%. With these intelligent controls more than 70% energy savings have been achieved.

In the Concourse and Gallery Suites, Waveguide Lighting replaced T8 fluorescents with the TiLite 30 and TiLite 30/120 fittings that were engineered to dim down to just 7% and to work seamlessly with RGB LED down lights.



Waveguide Lighting provided 300 Lux for the Skylight and in the Concourse and Gallery suites 600Lux was achieved.

The Skywalk's lighting creates daylight indoors and has received extremely positive comments from the NEC's customers for making the area more welcoming.

Waveguide Lighting's digital light sources' ability to deliver specific colour – and with an 80 CRI – not only makes the Skywalk brighter, cleaner and friendlier but shows everything in its truest colour.

All these effects are over and above the 70% energy savings and carbon reduction that the installations helped the NEC to achieve.

Testimonial:

“We definitely found the best solution in terms of budget, energy reduction targets and overall lighting effect with Waveguide Lighting. The light colour, output and uniformity is tremendous and all in all I believe we have the right light solution for the NEC. Waveguide Lighting has the right attitude and real enthusiasm for their lighting technology. They have the ability to be flexible and offer bespoke solutions – nothing was too much trouble. They listened and found solutions. We have only had positive comments from customers and NEC staff alike about the new lighting, - particularly about the Skywalk.”

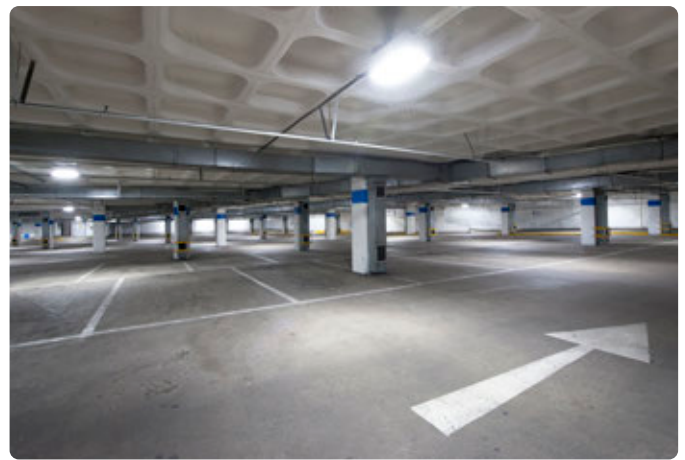
Andrew Cope, project engineer at the NEC



Cambridge Council

Multi-storey car parks - Key benefits:

- Substantial energy savings
- High quality light uniformity improves safety and security
- High Colour Rendering – makes cars easier to identify
- No Maintenance
- Intelligent controls



Award-winning LED lighting saves energy and lower carbon emissions for Cambridge Council.

The Challenge:

To provide Cambridge Council with a LED luminaire that would significantly reduce could energy bills and Co2 emissions but at the same time improved light uniformity in their Grand Arcade Annexe Car Park. This particular project was complicated due to the different layout of each level of the car park and because of sprinklers and ducting.

Our Solution:

Waveguide Lighting replaced 220 Halophane light fittings (150 watts without ballast) with 220 of their award-winning LB 36 fittings, which use just 45 watts (including ballast).

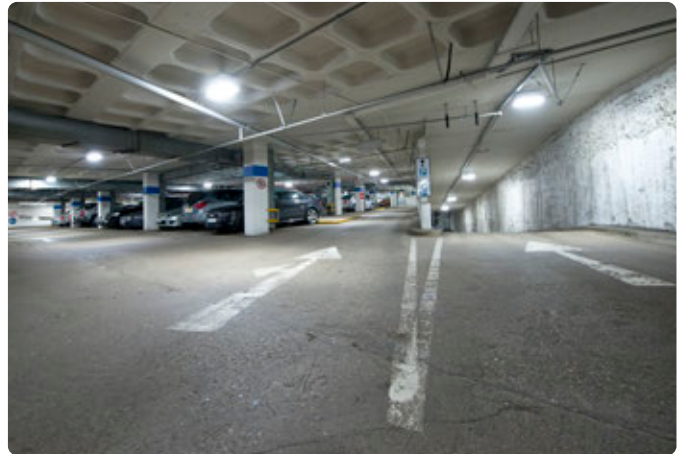
This is expected to achieve energy savings of up to 75% and cut carbon emissions by the equivalent amount.

The new LB light fittings run maintenance free for the duration of their 60,000-hour lifetime (which equates to seven years if they are switched on 24 hours a day, seven days a week). This will provide additional savings as no maintenance costs will be incurred.

Waveguide's fittings also provide enhanced lighting in specific areas of the car park, for example where payment machines are located. Car Park users can now clearly see payment information and have said that they can feel an increased sense of security due to the area being well lit.

The new lighting has benefited users of the Shopmobility service and Blue badge scheme who have allocated parking. The fittings ensure that the highest quality of uniform light is available to allow easy access /exit to vehicles for the most vulnerable customers.

CCTV footage is now clearer and the precise colour rendering of 65 CRI makes colours more vibrant and vehicles easier to identify



Testimonial:

“The Grand Arcade town centre car park is one of the city’s busiest car parks so high levels of light and light uniformity are crucial to ensure customers feel safe and secure, particularly as the car park is underground. As a result, the biggest challenge for us was completing the installation with absolute minimum disruption to customers and business users. We worked closely with Waveguide Lighting’s installers to ensure all the work was completed during quieter periods and were able to complete the project on schedule. The quality of light provided not only improves safety and security throughout, but also reduces the volume of shadows in the car park. The new lighting is more like being in natural daylight which is much more pleasant for our car park users. We are also intending to use this successful project as a benchmark to improve our energy efficiency and reduce our carbon footprint across our other car parks.” *Parking Services Operations Manager Sean Cleary*



Wigan Council

Multi-storey car parks - Key benefits:

- Substantial energy savings
- High quality light uniformity improves safety and security
- High Colour Rendering – makes cars easier to identify
- No Maintenance
- Intelligent controls



Wigan Council's cuts energy bills and improves light levels at one of its busiest car parks.

The Challenge:

To provide Wigan Council with a LED luminaire that would significantly reduce could energy bills and Co2 emissions but at the same time dramatically improved light levels in the car park.

Light uniformity was also crucial to eradicate pockets of darkness which would in turn improve customers' feelings of safety when using the car park.

Our Solution:

Waveguide provided a powerful solution to replace the existing 230 (70 watt) sodium fittings (84 watt with ballast) with their award-winning energy efficient LB30 fitting, which is just 45 watts inclusive of ballast.

These fittings are designed and constructed to operate for 60,000 hours maintenance free (seven years at 24 hours a day) and will save the council £1,065 per annum in annual maintenance costs.

The new light fittings now installed at Water Street Multi Storey Car Park use 45% less energy than the pre-existing system. With the use of light sensor controls they will save the council more than 50% on their energy bills. At current operational times they will also save 35 tonnes of Co2 per annum.

At the same time, the light levels and light uniformity within the multi-storey car park have been improved which will enhance customer experience and security at the site. CCTV footage is also clearer.



Testimonial:

“Illuminating Water Street Car Park in a cost effective, energy efficient way has been particularly difficult given the way it is constructed and its original lighting layout. Initially we set ourselves a target to reduce the car parks energy use by 50% while improving overall lighting levels. The good news is that since project works completion we are achieving our energy reduction target with savings on-going. We are also delighted with the improved light levels and uniformity within the car park.”

Wigan Council's Energy Officer Barry Foster

“Car parks pose a particular challenge as, unlike in other buildings where the emphasis is to switch off lights, the design of a multi storey car park means that artificial lighting is required throughout opening hours. Improving the efficiency of lighting such as this by up to 50% is therefore a brilliant result. This project is particularly impressive as it delivers a dual efficiency impact, by saving on both electricity running costs as well as annual maintenance costs.”

Wigan Council's Carbon and Energy Manager Janet Ackary



Manchester Airport

High Bay - Key benefits:

- Energy savings of up to 80% with intelligent controls
- High quality light uniformity
- Controls which work seamlessly alongside an Airport's Building Management System
- No heat generated under the lights
- No flicker or hum



Manchester Airport (MAG) instantly achieved 57% energy savings with Waveguide Lighting.

The Challenge:

In 2009, Manchester Airport Group (MAG) made a major commitment to reduce its carbon footprint and set out to be the first airport group to have carbon neutral ground operations by 2015.

Waveguide Lighting's first project at MAG in November 2010 saw 2140 LB Lite LED lights fitted in their multi-storey car parks, achieving overall Co2 reductions of 3170 tonnes over the products lifetime. The MAG team were keen to continue the momentum from the first project and turned their attention to Terminal Two Arrivals and Departures concourse and baggage reclaim hall. The arrivals and departures concourse and baggage reclaim hall is busy at certain times, but the lights remained permanently on, significantly contributing to the Airport's energy usage. The project needed to fit MAG's stringent criteria and not cause any disruptions to the Airport's daily operations.

Our Solution:

Waveguide Lighting replaced 280watt metal halides (including ballast losses) in Terminal Two Arrivals and Departures concourse and baggage reclaim hall.

Waveguide installed their award-winning High Bay TiLite, which is just 123 watts with ballast and delivers 300 lux to the floor. These lights replaced the metal Halides on a one-for-one basis and not only improved lighting levels and uniformity within the concourse but instantly achieved a 57% energy saving.

As part of this project, the highly skilled team at Waveguide Lighting integrated a control gear into the High Bay TiLites that works seamlessly alongside the Airport's Building Management System, which in turn works alongside aircraft flight movements interface.

This means that MAG have the potential to do clever things like dim the lights in empty passenger zones, but automatically switch the lights back on when aircraft have landed.

Testimonial:

"We were particularly impressed with the speed and efficiency of Waveguide Lighting to design fit and test their products to our stringent criteria. Waveguide Lighting is demonstrating right here at Manchester Airport that with forward thinking design, it is possible to improve light levels, while reducing energy consumption and carbon impact."

Jonathan Beswick, Manchester Airport project technician

"Often no-one manufactures the luminaire we want. We're always finding that there are areas that don't seem to be covered by the main manufacturers. For example, when we did our car parks we struggled to find a true retrofit replacement for a Low Bay application and we struggled with the flexibility of some of the major manufacturers.

"As a result we ended up working with local manufacturer Waveguide Lighting as they offered us a bespoke solution. For those niche areas where we struggled, we've been quite lucky in that we can now work closely with Waveguide Lighting.

"They have become an invaluable design outfit that can fill all the important gaps for us."

Andy Sheridan, Services Facilities Manager at Manchester Airport



Scott Safety

Manufacturing - Key benefits:

- Energy savings
- High quality light uniformity
- Occupation health standards are met – no flicker / or hum
- Maintenance free
- 4000 Kelvin colour, 80 CRI LED for precision working
- Intelligent controls



Scott Safety, a Tyco Company, cuts lighting energy bills by 81% at its Skelmersdale site.

The Challenge:

With thousands of people depending on Scott Safety products to protect them in high risk environments, it was imperative that light output, light quality and uniformity were high quality so as to aid precision working.

Scott Safety required all the existing T5 fluorescent fittings in both the Warehouse and on the Shop Floor to be replaced with an energy saving alternative. They also wanted to utilise the natural daylight from sky lights to further energy savings through the integration of intelligent controls. Additionally, Scott Safety wanted to enhance the working environment for their staff.

Our Solution:

Waveguide's team of lighting experts designed a bespoke precision lighting solution, which saw a total of 281 Waveguide lighting LED luminaires with 23 sensors installed. This included 113 award winning High Bay TiLite 70 fitting (82 watts including ballast) and nine TiLite 30/120 (45 watts including ballast) installed above the shop floor and 46 Oval High Bay 150watt fittings in the warehouse. This reduced annual lighting energy consumption from 263,907kW/h (annual cost of £26,391) to just 51,730Kw/H. Annual energy bills have therefore been reduced to just £5,173.

Waveguide Lighting's TiLites were chosen that supplied 80CRI and 4000 kelvin colour temperature. This combination is proved to significantly enhance the working environment which will also aid precision working and contribute to a greater feeling of wellbeing amongst the staff.

Through their low-energy LED Luminaires Waveguide Lighting was also able to achieve a reduction in Co2 production of 84% in the Shop Floor area and 64% for the Warehouse. This equates to product lifetime Co2 savings of 2,003 Tonnes (115 Tonnes per year).

Because of the high quality sky lights in the factory ambient day light sensors were also installed so that during day light hours the fittings will burn at a fraction of their total output thus maximising energy savings further. PIR sensors were also installed in the Warehouse. At current operating hours the fittings offer a useful lifetime of 16 and 25 years for the Shop Floor and Warehouse respectively. Throughout life they require no maintenance saving Scott Safety a further £51,905 in maintenance costs during product lifetime. This takes overall lifetime savings for this project to £419,953.

Testimonial:

“Lighting is a significant part of us achieving our carbon footprint reduction goals. When we set out on this project we wanted to find solutions that not only improved light quality but also significantly reduced our energy consumption.

“Waveguide Lighting has been able to offer a solution that ticks these boxes. Not only are we seeing real cost savings on our energy bills but the light colour, output and uniformity is superb and our staff are benefiting from the improved lighting.”

Pete Osborne, Production Engineering and Facilities Manager for Scott Safety



Hillsnews Londis

Small convenience stores - Key benefits:

- Significant energy savings
- High quality light uniformity
- 4,500 Kelvin colour, 80 CRI LED - optimum combination for displaying produce
- Improved shopping experience - potentially increasing sales
- Requires no maintenance
- Units contribute to store hygiene
- Do not generate heat so fridges or air conditioning units don't have to work as hard



The project at Hillsnews, Darlington, will cut lighting energy bills by 63% and Co2 emissions by 63 tonnes, saving £17,562 plus an extra £2,255 on maintenance costs

The Challenge:

Hillsnews Londis was looking for a new lighting solution, as the costs associated with maintaining and replacing its existing fluorescents with like-for-like became too much.

Key requirements were to source an energy saving solution that would not only cut down on costly energy and maintenance bills, but to improve the shopping experience and improve CCTV images.

Our Solution:

Waveguide Lighting replaced traditional fluorescents throughout Hillsnews' shop floor, back office and post office areas with a selection of their award-winning TiLite fittings.

With the store's 15 hour day cycle, Waveguide Lighting is able to provide an ROI of 439% by significantly reducing annual lighting energy consumption from 16,767Kw/h (annual cost of £20,400) to just 6,140Kw/h. Annual energy bills have therefore been reduced to an average of just £1,764, bringing product lifetime savings to £17,562.

Waveguide Lighting's patented TiLite technology achieves high colour rendering of 80CRI and 4,500 kelvin colour temperature. This particular combination offers the optimal colour for displaying produce thus enhancing the shopping experience for customers and increasing sales.

The lighting system is also extremely low maintenance and will run for 60,000 hours of continuous use. With Hillsnews' 15 hour a day operation the lights will not need replacing for eleven years, making additional savings on maintenance costs of £205 per year - a saving of £2,255 over the product's lifetime.

An additional benefit comes as the sealed units do not attract dust or insects, making them the most hygienic option for any convenience store. The lack of heat given off by the units also means that produce stays fresher for longer and chillers and air conditioning doesn't need to work as hard, saving further energy usage.

Testimonial:

"We sought a new lighting solution after the costs associated with replacing our existing fluorescents with like-for-like became too much. We conducted an extensive procurement process and selected Waveguide Lighting because of their reputation and proven ability to design and install bespoke projects at other convenience stores."

"The new LED lighting has considerably improved lighting levels and is significantly reducing our on-going energy costs, which for me is essential. I was particularly impressed with how vibrant the produce looks and the reduced flicker on CCTV monitors which has dramatically enhanced clarity of the CCTV footage."

Andy Hill, Hillsnews owner and Londis Retail Partner.



Bournemouth Airport

Outdoor car parks - Key benefits:

- Energy savings
- High quality light uniformity improves safety and security
- High Colour Rendering – makes cars easier to identify
- No light pollution
- Intelligent controls such as ambient sensors or dimmers to further maximise energy savings



Bournemouth Airport reduces its car park lighting energy costs by 72%, saving 65 tonnes of Co2 per annum and more than £290,000 on energy bills.

The Challenge:

Bournemouth Airport announced they were looking to achieve carbon neutral ground operations in August 2012.

As part of this pioneering initiative they asked Waveguide Lighting to provide them with an LED lighting scheme for their external car parks that would reduce energy consumption and Co2 whilst improving the quality of lighting for their customers.

The challenge was to provide the highest levels of light quality and uniformity with fittings that had to be installed on four meter high poles spaced at 40 meters apart.

Our Solution:

Waveguide Lighting's team of professionals created a powerful solution to replace 150 watt SON fittings (170 watt with ballast) with their P30 fitting – which is just 67 watts inclusive of ballast.

The 209 lights were fitted on a one-for-one basis to the four metre high poles spaced at 40 metres, providing the airport with an unrivalled standard of light level and uniformity. This will enhance both the customer experience and security at the site – providing more than 20 Lux to the floor.

The new light fittings now installed in two of Bournemouth Airport's car parks use 72% less energy than the pre-existing system. With the use of intelligent controls the P30 fittings will save the airport an additional 25% on their energy bills by reducing operating hours to nine from 12.

By providing LED lighting with a useful lifetime of 18 years, Waveguide Lighting is able to significantly reduce the airport's lighting energy consumption from 164,776Kw/h to just 46,137Kw/h, saving 118,638 Kw/h.

The newly installed P30 fittings run maintenance free for the duration of their 60,000-hour lifetime (which equates to seven years if they are switched on 24 hours a day, seven days a week). This provides additional savings of over £1,000 per annum, as no operational maintenance costs will be incurred.

Testimonial:

“Bournemouth Airport was one of the first airports in the UK to achieve carbon-neutral ground operations in 2012 and we are extremely proud of our achievements to date. We continue to invest in low-carbon technology to minimise our carbon footprint as part of Manchester Airport Group's sustainability agenda for all its airports.”

“By replacing the lighting in car parks one and two with new low-energy LED fittings, we have been able to save energy, cost and better the journey for our customers. It is incredibly important to us, to work with a company that understands our needs and Waveguide Lighting have a proven track record when looking at airport lighting.”

Michael Twomey, Head of Technical Services at Bournemouth Airport.



Kennas Centra

Retail / Commercial Energy Solutions - Key benefits:

- Typical energy savings of 80%
- High quality light uniformity
- 4500 Kelvin colour, 80 CRI LED
- Units contribute to store hygiene
- Generates little heat into the atmosphere – perfect for air conditioned areas
- Helps improve CCTV footage and store security
- Five year warranty



Kennas Centra improves retailing image and slashes energy bills by 85%

The Challenge:

Kennas Centra approached Waveguide Lighting's approved partners Commercial Energy Solutions to find an energy saving solution that would not only cut down on costly energy and maintenance bills but also help enhance the appearance of the store and produce displayed within it.

They also required a solution that would help them meet their commitment to hit carbon reduction targets and provided a payback period of less than three years.

Their current energy consumption was 99,221kWhrs p.a.

Our Solution:

Commercial Energy Solutions specified 29 of Waveguide Lighting's award-winning TiLite fittings to replace existing fluorescent fittings. As well as providing high colour rendering of 80CRI with 4500 kelvin (the optimal colour for displaying produce), the TiLite has also been shown to contribute to store hygiene as dust and flies cannot ingress within the sealed unit.

A further 10 Waveguide Lighting RodLites were installed in order to illuminate area signs along with two C-Lite Luminaires under the external canopy at the shop entrance.

In total 63 Waveguide Lighting fittings replaced 252 fittings with significant improvements in light quality and uniformity within the store. .

Overall energy consumption was reduced by 85% to just 15,870kWhrs p.a.

With a product lifetime of almost 13 years, total energy savings of €185,657 will be achieved. This equates to an 83,350kWhrs p.a energy saving.

Waveguide Lighting's fittings run maintenance-free during the product lifetime, which will again save Kennas Centra €1,168 in routine maintenance costs.

The lack of heat given off by LED lighting also allows further energy savings to be made through reduced use of air conditioning systems. The machines do not have to work as hard to cool down additional heat in the shop, which is beneficial for open refrigerators.

High colour rendering enhances the colour of produce making it more appealing to customers.

The store's security was improved with the removal of the old lighting fittings. The LED lighting allows for a clearer identification of suspects and reduces flicker on CCTV monitors.

Testimonial:

"CES provided us with a powerful LED lighting solution from Waveguide Lighting that not only improves lighting levels in the store but reduces our on-going energy costs and equivalent Co2 emissions. We are delighted with the results and are getting positive feedback from our customers about how great the new lighting installation looks. Our store stocks the best quality fresh produce and the LED lighting really enhances the appearance of our store and everything displayed within it. CES provided us with an exceptional service and ensured disruption within the store was kept to a minimum. Overall we are absolutely delighted with the result."

Dominic Kenna, Kennas Centra



External Car Parks

External car parks - Key benefits:

- Up to 80% energy savings
- High quality light uniformity improves safety and security
- High Colour Rendering – makes cars easier to identify
- No light pollution
- Intelligent controls such as ambient sensors or dimmers to further maximise energy savings

Bournemouth Airport



Newcastle Airport



Waveguide's award-winning low-energy lighting is helping our car park clients reduce their lighting energy costs, slash carbon emissions and save thousands per annum on energy bills.

EXAMPLE: BOURNEMOUTH AIRPORT

The Challenge:

Bournemouth Airport announced they were looking to achieve carbon neutral ground operations in August 2012. As part of this pioneering initiative they asked Waveguide Lighting to provide them a LED lighting scheme for their external car parks that would reduce energy consumption and Co2 whilst improving the quality of lighting for their customers.

The challenge was to provide the highest levels of light quality and uniformity with fittings that had to be installed on four metre high poles spaced at 40 metres apart.

Our Solution:

Waveguide Lighting's team of professionals created a powerful solution to replace 150 watt SON fittings (170 watt with ballast) with their P30 fitting – which is just 67 watts inclusive of ballast.

The 209 lights were fitted on a one-for-one basis to the four metre high poles spaced at 40 metres, providing the airport with an unrivalled standard of light level and uniformity. This will enhance both the customer experience and security at the site – providing more than 20 Lux to the floor. The new light fittings now installed in two of Bournemouth Airport's car parks use 72% less energy than the pre-existing system. With the use of intelligent controls the P30 fittings will save the airport an additional 25% on their energy bills by reducing operating hours to nine from 12.

By providing LED lighting with a useful lifetime of 18 years, Waveguide Lighting is able to significantly reduce the airport's lighting energy consumption from 164,776 kWh to just 46,137 kWh, saving 118,638 kWh.

The newly installed P30 fittings run maintenance free for the duration of their 60,000-hour lifetime (which equates to seven years if they are switched on 24 hours a day, seven days a week). This provides additional savings of over £1,000 per annum, as no operational maintenance costs will be incurred.

Testimonial:

"By replacing the lighting in car parks one and two with new low-energy LED fittings, we have been able to save energy, cost and better the journey for our customers. It is incredibly important to us, to work with a company that understands our needs and Waveguide Lighting have a proven track record when looking at airport lighting."

Michael Twomey, Head of Technical Services at Bournemouth Airport.

EXAMPLE: NEWCASTLE AIRPORT

The Challenge:

To create an LED fitting which would improve lighting levels, reliability, and reduce the on-going energy costs associated with the pre-existing lighting solution in Newcastle Airport's car parks.

At the same time, to improve Newcastle Airport's customer's experience and reduce the carbon footprint of the business.

Our Solution:

We created a powerful bespoke solution to replace 150 watt SON fittings (170 watt with ballast) with our PL40 fitting - which is just 45 watts inclusive of ballast.

The lights were fitted to 6.5 metre high poles spaced at 18-21 metres to provide Street Standard lighting, light levels and uniformity - giving an average in excess of 20 lux. The quality of the LED lights also improves safety and security at the airport by eradicating pockets of darkness and making CCTV footage clearer Newcastle Airport is now saving 70% on its car park lighting costs. The new lighting will also halve carbon emissions and cut energy emissions by up to 70%.



Testimonial:

"The airport instructed Waveguide Lighting to design an LED fitting which would improve lighting levels, reliability, and reduce the on-going energy costs associated with the pre-existing lighting solution in the car parks. The result was a 45watts bespoke fitting which replaces the previous 150 watts SONS units. This will save the airport approximately 100 T/CO2 per year and significantly reduce the associated maintenance costs. The new lighting has been a great success. It was recently praised in our Park Mark Award assessment with positive feedback on its quality and how it has enhanced the area's safety and security features, which in turn will greatly benefit our customers. We are delighted with the installation."

Terry Clarke, Energy and Sustainability project manager at Newcastle Airport



Retail

Retail - Key benefits:

- Enables produce to be displayed in its best light - 4,500 Kelvin colour, 80 CRI LED
- Improved shopping experience - potentially increasing sales
- Helps improve CCTV footage and store security
- Generates little heat - so fridges or air conditioning units don't have to work as hard
- Typical energy savings of 80%
- High quality light uniformity
- Units contribute to store hygiene
- 60,000 hours of useful time (7 years at 24 hours a day operation)



Waveguide's award-winning LED lighting is helping retailers enrich their customer's experience, whilst significantly reducing lighting energy costs and slashing carbon emissions

EXAMPLE: BUDGENS, CHEDDAR

The Challenge:

Tout's Budgens asked our experts to devise an LED lighting scheme for the re-launch of their Church Street store which would showcase the fresh, quality produce they are famous for to best effect. They wanted an energy saving solution that would not only cut down on costly energy and maintenance bills but also help them meet their commitment to reduce Co2 emissions.

Our Solution:

Waveguide Lighting replaced traditional fluorescents with 84 of their unique TiLite fittings from its patented product range. A further 38 LED down lighters were installed in the store's Subway concession (over tables) and in the pharmacy areas. The new installation not only achieves high colour rendering of 80CRI with 4500 kelvin - the optimal colour for displaying produce - but has cut lighting energy costs and Co2 production by 65%. The installation has provided Tout's Budgens at Cheddar with energy savings of £89,539 over the product's lifetime. Equally importantly it saves 567 Co2 tonnes.

The lighting system is also extremely low maintenance and will run for 60,000 hours of continuous use. In the case of Tout's Budgens at Cheddar - with an 18 hour a day operation - this means that the lights will not need replacing for nine years and will save an added £12,880 on routine maintenance. The lack of heat given off by LED lighting allows further energy savings to be made through reduced use of air conditioning systems. The machines do not have to work as hard to cool down additional heat in the shop, which is beneficial for open refrigerators.

The store's security was improved with the removal of the old fluorescent lighting fittings. The LED lighting allows for a clearer identification of suspects and reduces flicker on CCTV monitors.

Testimonial:

"We chose to make the switch to LED lighting as part of our commitment to improving the customer experience and reducing the carbon footprint of the business. Waveguide Lighting provided a LED lighting solution that not only improves lighting levels but reduces our on-going energy costs and equivalent Co2 emissions.

We are delighted with the results and are already getting positive feedback from our customers about how great the new store looks and the feel of the store created by the light. All our stores stock the best quality fresh produce from local growers and the LED lighting really enhances the appearance of our fruit and veg and butchery offering."

Philip Tout, owner Tout's Budgens



EXAMPLE: LONDIS, DARLINGTON

The Challenge:

Hillsnews Londis was looking for a new lighting solution, as the costs associated with maintaining and replacing its existing fluorescents with like-for-like became too much. Key requirements were to source an energy saving solution that would not only cut down on costly energy and maintenance bills, but to improve the shopping experience and improve CCTV images.

Our Solution:

Waveguide Lighting replaced traditional fluorescents throughout Hillsnews' shop floor, back office and post office areas with a selection of their award-winning TiLite fittings. With the store's 15 hour day cycle, Waveguide Lighting is able to provide an ROI of 439% by significantly reducing annual lighting energy consumption from 16,767Kw/h (annual cost of £20,400) to just 6,140Kw/h. Annual energy bills have therefore been reduced to an average of just £1,764, bringing product lifetime savings to £17,562. Waveguide Lighting's patented TiLite technology achieves high colour rendering of 80CRI and 4,500 kelvin colour temperature.



This particular combination offers the optimal colour for displaying produce thus enhancing the shopping experience for customers and increasing sales.

The lighting system is also extremely low maintenance and will run for 60,000 hours of continuous use. With Hillsnews' 15 hour a day operation, the lights will not need replacing for eleven years, making additional savings on maintenance costs of £205 per year - a saving of £2,255 over the product's lifetime.

An additional benefit comes as the sealed units do not attract dust or insects, making them the most hygienic option for any convenience store. The lack of heat given off by the units also means that produce stays fresher for longer and chillers and air conditioning doesn't need to work as hard, saving further energy usage.

Testimonial:

"The new LED lighting has considerably improved lighting levels and is significantly reducing our on-going energy costs, which for me is essential. I was particularly impressed with how vibrant the produce looks and the reduced flicker on CCTV monitors which has dramatically enhanced clarity of the CCTV footage."

Andy Hill, Hillsnews owner and Londis Retail partner



Subway

Food preparation / restaurant - Key benefits:

- 4500 Kelvin colour, 80 CRI LED – optimum combination for displaying food
- Improved shopping experience – potentially increasing sales
- Typical energy savings of 80%
- High quality light uniformity
- Generates little heat – so chillers and air conditioning units don't have to work as hard
- Units contribute to store hygiene
- Helps improve CCTV footage and store security



Subway store cuts its lighting energy costs by 85%, saving 65 tonnes in Co2 emissions and more than £20,000 on lighting energy bills

The Challenge:

As part Subway's drive to improve sustainability of both their products and operations, forward-thinking Subway Chorley asked Waveguide Lighting to provide them with an LED lighting solution that would not only cut down on costly energy and maintenance bills and reduce Co2 emissions, but would improve their customers' experience and improve CCTV images.

Our Solution:

Waveguide Lighting's team of professionals created a comprehensive lighting solution to replace existing fittings throughout the sandwich shop, with a selection of their award-winning TiLite fittings.

Waveguide's TiLites were installed in the sandwich preparation and customer seating areas, which achieve an impressive colour rendering of 80CRI and 4,500 kelvin colour temperature.

This particular combination offers the optimal colour for displaying fresh produce, subsequently enhancing the customer experience and potentially increasing sales.

TiLites were also installed in the backroom area and washroom.

The newly installed lighting system is also extremely low maintenance and will run for 60,000 hours of continuous use.

With Subway's 12 hour day cycle, Waveguide Lighting is able to provide an ROI of 674% by significantly reducing annual lighting energy consumption from 10,260 kWh (average annual cost of £1,538) to just 1,570 kWh.

An additional benefit comes as the sealed units do not attract dust or insects, making them the most hygienic option for any food preparation area. The lack of heat given off by the units also means that produce stays fresher for longer and chillers and air conditioning doesn't need to work as hard, saving further energy usage.

Annual energy bills have therefore been reduced to an average of just £235, bringing product lifetime savings to £21,041.

Testimonial:

"The new LED lighting has significantly enhanced lighting levels, which is helping to create more sales and is playing a major role in reducing our on-going energy costs, which for me and Subway is essential."

I am particularly impressed with how fresh the food looks in the sandwich counter and have had several comments from both staff and customers saying how vibrant the shop looks.

Waveguide Lighting provided me with a first rate service and kept disruption during installation to a minimum. Overall I am absolutely delighted with the result, as are my staff and customers."

Subway Franchisee, Darryl Clemson



St. Mary's Court

Offices - Key benefits:

- Energy savings of up to 80% and equivalent reduction in Co2 production
- High quality light uniformity
- Occupation health standards are met – no flicker / or hum
- Maintenance free for the lifetime of the product
- 4000 Kelvin colour, 80 CRI LED – significantly enhances the working environment
- Intelligent controls to further maximise energy savings



Isle of Man offices slash energy bills and save over 850 Tonnes of CO2 with LED lighting

The Challenge:

With rising electricity costs, increased pressures from both Government and industry to reduce carbon emissions and a necessity to improve light levels for the three resident organisations within St. Mary's court, a 36,000 square foot commercial building on the Isle of Man, Waveguide Lighting was approached to create a lighting solution that would deliver on a strict brief:

To find new lighting solutions that would not only improve light quality for the three leaseholders, but would significantly reduce St. Mary's Court's energy consumption and Co2 production.

Our Solution:

The project saw a total of 227 award-winning TiLite (TL) luminaires installed in the offices and lobby areas of Charlemagne Capital (IOM) Ltd, Nedbank Private Wealth Ltd and Tristao Services Ltd.

This included 160 TL30/700, 53 TL24/700, and 14 TL20 fittings. Waveguide Lighting's TiLites were chosen that supplied 80CRI and 4000 kelvin colour temperature. This particular combination can significantly enhance the working environment, which is also known to aid concentration – contributing to a greater feeling of wellbeing amongst the staff.

This has reduced combined annual lighting energy consumption at St. Mary's Court from, 153,925kW/h (annual cost of £20,780) to just 55,053kW/h. Mutual annual energy bills have therefore been reduced to an average of just £7,432 per annum.

Through their low-energy LED Luminaires, Waveguide Lighting was also able to achieve a significant reduction in Co2 production for the offices, equating to product lifetime Co2 savings of 853 tonnes (an average of 55 tonnes per year).

This makes for additional savings on maintenance costs of £56,382 over the products' lifetime – bringing total lifetime savings to £310,737.

Due to the lighting system's design and high-reliability, the units also extremely low maintenance and will run for 60,000 hours of continuous use. With Charlemagne Capital's 14, Nedbank Private Wealth's 15 and Tristao Services' 13 hour a day operations – the lights will not need replacing for 16, 15 and 18 years respectively.

The installations have fully serviced warranties of ten years – this is three above the standard for similar LED lighting installations. The life of the driver used to power the units is 66,000 hours and after the useful life of the Philips LED, the individual residents will have a further 6,000 hours in which to determine whether to refurbish or replace the lights.



Testimonial:

Catalina Property Services, said: "After discussions with our residents about rising electricity costs, increased pressures to reduce carbon emissions and ways to improve light levels in our building – we sought a lighting supplier who could deliver on our strict brief.

"We are pleased to say that Waveguide Lighting has been able to offer a solution that delivered on all our collective goals.

"By replacing the lighting in the offices of our residents with Waveguide Lighting's low-energy LED fittings, not only are they seeing real cost savings on their energy bills – over £300,000 is expected, but the light colour, output and uniformity is superb and the initial feedback is that staff are benefiting from the improved lighting levels.

"It is incredibly important to us to work with a company like Waveguide Lighting, as they understand the intricacies of what is involved and listen to what is being asked of them.

Waveguide Lighting's expert and experienced team caused no intrusion during installation, which was completed outside of the offices' opening hours, causing zero disruption to the residents' day-to-day operations."



Solvents with Safety

Manufacturing – Key benefits:

- Energy savings of up to 80% and equivalent reduction in Co2 production
- High quality light uniformity
- Occupation health standards are met – no flicker / or hum
- Maintenance free
- 4000 Kelvin colour, 80 CRI LED for precision working
- Intelligent controls to further maximise energy savings



Solvents specialist trebles light levels, saves 60 tonnes of CO2 and over £20,000 with LED lighting

The Challenge:

After undergoing a site re-build in 2011 leading solvent supplier, Solvents with Safety, discovered that the lighting had been incorrectly specified – this made the lighting levels ineffective for their workforce, as well as proving to be very expensive.

To combat this, the forward-thinking solvent suppliers contacted Waveguide Lighting to design a lighting scheme that would replace all existing Halide fittings in their warehouse, significantly enhance light levels, whilst reducing on-going lighting energy costs.

Our Solution:

Waveguide's team of lighting experts designed several bespoke precision lighting solutions, providing Doncaster-based Solvents with Safety three different options, each delivering various levels of lighting, energy and cost savings.

Solvents with Safety opted for the solution that trebled the light levels in the warehouse, saving 60 tonnes of Co2 and over £20,000 on lighting energy bills.

This consisted of 18 CLite 90/700 fittings, with six sensors installed – reducing annual lighting energy consumption from 19,710kW/h (annual cost of £2,168) to 12,463kW/h. Annual energy bills have therefore been reduced to an average of just £1,371.

This not only reduced annual lighting energy bills by almost £800, but trebled the light levels in the warehouse from an average of between 50 and 60 Lux (maximum luminescence of 80 Lux), to now achieving maximum luminescence of 239 Lux – giving an average of 170 Lux.

Waveguide Lighting was also able to achieve a reduction in Co2 production of 37% in the warehouse. This equates to product lifetime Co2 savings of 60 tonnes (an average of four tonnes per year).

At current operating hours the fittings offer a useful lifetime of 15 years. Throughout life they require no maintenance saving Solvents with Safety a further £4,622 in maintenance costs during product lifetime.

This takes overall lifetime savings for this project to £22,376.

Testimonial:

“After undergoing a site re-build in 2011, we discovered that the lighting had been incorrectly specified. This made the lighting ineffective for our workforce, as well as being very expensive.

“After being introduced to Waveguide lighting by our Executive Chairman, Keith Wilson, we set about completing a comprehensive tendering process. This involved trialling various fittings to determine the most effective lighting scheme to meet our stringent requirements.

“Waveguide Lighting offered us three different schemes and we opted for the one that provided the highest levels of illumination, whilst achieving significant energy savings and Co2 reductions.

“Not only is the light colour, output and uniformity superb, but our staff are benefiting from the improved lighting and we are seeing real cost savings on our energy bills.

“Waveguide Lighting’s service has been first-rate throughout the project and we are now looking at further projects aimed at improving our office lighting.”

George Whale, Operations Manager for Solvents with Safety



Corrugated Case Company

Manufacturing – Key benefits:

- Energy savings of up to 80% and equivalent reduction in Co2 production
- High quality light uniformity
- Occupation health standards are met – no flicker / or hum
- Maintenance free
- 4500 Kelvin colour, 85 CRI LED for precision working
- Intelligent controls to further maximise energy savings



Corrugated box manufacturer to save over £60,000 on lighting energy bills and 140 Tonnes of Co2 with LED

The Challenge:

Chesterfield-based Corrugated Case Company (CCC) provides its customers with superior corrugated transit packaging and promotional material.

As part of their ambitious growth plans, they invested heavily in new equipment to help deliver their plans and sought a new lighting solution for their factory.

With their low-energy luminaires and proven ability to design bespoke, precision lighting solutions Waveguide Lighting's lighting experts were tasked to provide an LED lighting solution that would significantly reduce CCC's on-going lighting energy bills and aid precision working, whilst not compromising light quality and uniformity.

Our Solution:

Waveguide allocated a dedicated application engineer to CCC, who designed several bespoke precision lighting solutions, providing CCC with an LED lighting solution that delivered significant energy and cost savings.

After trialling various fittings to find luminaires that would deliver significant reductions in lighting energy costs, whilst providing optimal light colour and uniformity – low energy LED Luminaires from Waveguide Lighting's CLite range were chosen that supplied 85CRI and 4500 kelvin colour temperature.

continued....

This particular combination can significantly enhance the working environment, which also aids precision working, contributing to a greater feeling of wellbeing amongst the staff.

The project saw a total of 33 C120/700 fittings installed in CCC's factory – reducing annual lighting energy consumption from 34,545kW/h (annual cost of £4,094) to just 16,558kW/h, saving £2,132.

Annual energy bills will therefore be reduced by an average of £1,962.

Waveguide Lighting is also set to achieve a reduction in Co2 production of 51% in the factory. This equates to product lifetime Co2 savings of 142 Tonnes.

Due to the lighting system's design and high-reliability, the units will run maintenance free for 66,000 hours of continuous use.

With CCC's current operating hours of 42 hours a week, 50 weeks per year – the fittings offer a useful lifetime of 15 years.

Throughout life they require no routine maintenance, saving CCC an average of £230 during products' lifetime.

This takes overall savings for this project to £67,764.

Testimonial:

“Having recently invested well over £500,000 in new printing and die-cutting machinery at our factory, we also undertook a complete revision of our machinery layout. With more space and thanks to the greatly enhanced lighting, we were looking to increase our production capacity by some 20 per cent.”

The installation went really well and our operators have all noted the overall improvement in general lighting throughout the site. We are very happy with our decision to invest in the lighting system from Waveguide.”

Mark Wilcockson, Managing Director of Corrugated Case Company.



HellermannTyton

Manufacturing – Key benefits:

- Significant energy savings and reduction in Co2 production
- High quality light uniformity
- 5700 Kelvin colour, 75 CRI LED for precision working
- Occupation health standards are met – no flicker or hum
- Intelligent controls to maximise energy savings



HellermannTyton quadruples light levels in its Manchester factory thanks to LED lighting solution

The Challenge:

HellermannTyton is a market leading global manufacturer and supplier of high performance and innovative cable management solutions.

With thousands of people depending on HellermannTyton's products in a variety of environments, it was imperative that light output, light quality and uniformity were high quality so as to aid precision working and general inspection.

Switching to LED lighting was part of the forward-thinking company's strategy to improve light levels in former warehouse areas that are now being used for production, whilst ultimately reducing associated energy costs and Co2.

With their low-energy luminaires and proven ability to design bespoke, precision lighting solutions Waveguide Lighting's experts were tasked to provide an LED lighting solution that would significantly reduce HellermannTyton's on-going lighting energy bills and aid precision-working, whilst not compromising light quality and uniformity.

Our Solution:

Waveguide Lighting's application engineers designed several bespoke precision lighting solutions aimed at delivering significant energy and cost savings.

The project saw a total of 33 Waveguide Lighting TiLite luminaires installed with five daylight saving sensors to maximise natural daylight from existing skylights.

continued....

Thanks to the innovative lighting provided by Waveguide Lighting, HellermannTyton has almost quadrupled in the light levels in parts of its Manchester manufacturing site from an average of 90 lux to 400.

Not only have the desired lux levels been achieved but the historic low-level task lighting in the production area is no longer necessary and has been switched off – thus providing additional energy savings.

At the same time, Waveguide Lighting replaced 72 72watt fluorescent fittings in the corridors surrounding the production areas with 75 of Waveguide's award-winning TiLite 20/180 fittings, which are just 29watts including ballast. As a result, lighting energy consumption in this area was reduced by 69%, equating to a £2,700 saving in energy costs annually.

Through their low energy luminaires, Waveguide Lighting was also able to achieve a reduction in Co2 emissions of 160 Tonnes during the product's eight year predicted lifetime.



Testimonial:

“We had looked to four well-known lighting companies to get different quotes for these projects, but only Waveguide actually surveyed the areas and discussed our specific lighting needs with us.

“From the beginning their attention to detail was second to none – nothing was too much trouble and everything was about us ultimately getting the right solution for the individual application.

“It is so refreshing to have absolute confidence in a supplier. Waveguide Lighting promised us a two week lead time for our production area and all work was done within that time frame.

“We are absolutely delighted with the results. Feedback from the team has been really positive to the point I am being asked by employees if their area can be done next.”

Chris Brookes, HSE Officer at HellermannTyton



Street Lights

Key benefits:

- Significant energy savings and short payback period
- Reduction in Co2 production and no light pollution
- High quality light uniformity improves safety and security, with minimal glare
- High colour rendering – makes cars and objects easier to identify
- In-built photocell (dusk to dawn) sensors to further maximise energy savings



Waveguide's award-winning LED street lighting is helping UK Councils reduce their energy costs and slash Co2 emissions

EXAMPLE: Cheshire West and Chester Council

The Challenge:

Like many Councils across the UK, Cheshire West and Chester Council is committed to ensuring that the streets within its jurisdiction are safe and well maintained.

The Council's street lights play a key part in its street maintenance agenda, and switching to LED lighting was part of a forward-thinking environmental strategy to improve light levels in residential areas, whilst ultimately reducing associated energy costs and Co2 emissions.

Our Solution:

As one of the first Council's within the UK to install Waveguide's revolutionary new Arc and Vectra SL20 LED StreetLites, overall lighting energy consumption has been cut by up to 60% across three residential areas in Cheshire West and Chester.

Waveguide Lighting's LED StreetLites replaced 70w (without ballast) sodium lights. In this case the Arc and Vectra SL20 luminaires are just 29w (including ballast) and have an IP rating of 67.

The StreetLites were fitted on a one-for-one basis on six metre high poles spaced between 30-50m metres and provide a lighting scheme to S6 – the specified lighting class for residential roads, foot or cycle paths with low-high traffic flow.

The high quality light uniformity and high colour rendering provided has improved the feeling of safety and security on the street by eradicating pockets of darkness, with minimal glare for residents. The high colour rendering also makes cars and objects easier to identify and CCTV footage is much clearer.

Thanks to Waveguide's award-winning technology, the StreetLite Series can deliver a range of beam angles, creating a well-lit environment outside whilst ensuring the light does not shine into the windows of nearby properties. Waveguide's StreetLites have been expertly designed to provide Street Standard Lighting (S1 to S6). The luminaires are best suited to heights of between 4-9 metres and provide an ideal solution for street lighting, walk ways and perimeter applications.

As with all of Waveguide's LED luminaires, there are no additional costs or disruption caused by maintenance issues during the product's lifetime of 110,000 hours. Plus energy costs can be further reduced by incorporating intelligent controls such as ambient sensors and dimmers.



Testimonial:

A spokesperson from Cheshire West and Chester Council Street Lighting and Traffic Control Team, said:

“Our long term plans have always been to develop a modern street lighting network that uses energy saving technology. The council instructed Waveguide Lighting to design an LED fitting which would improve light levels and reduce on-going energy costs associated with the pre-existing street lighting solution. The new lighting has been a great success – residents have commented on how it has enhanced the feeling of safety and security within their area. We are delighted with Waveguide's street light installation and it will benefit the Cheshire West and Chester community by significantly reducing light pollution and carbon emissions.”



Waveguide Lighting's StreetLite is available as a retrofit option or can be supplied in a full enclosure with an IP rating of 67. Bespoke designs are also available upon request.

Synertec

Manufacturing – Key benefits:

- Significant energy savings and reduction in Co2 production
- High quality light uniformity
- 5700 Kelvin colour, 75 CRI LED for precision working
- Occupation health standards are met – no flicker or hum
- Two year payback period



Document management company Synertec saves 80% on lighting energy costs thanks to Waveguide

The Challenge:

Synertec, a leading document management company, needed to reduce its lighting energy consumption and maintain high quality light levels in all three of its UK sites.

Switching to LED lighting was part of the forward-thinking company's strategy to improve light levels at its Warrington, St Albans and Bristol sites, whilst ultimately reducing associated energy costs and Co2.

Synertec work with its customers to streamline document archiving and distribution processes, so it was essential to have high quality light uniformity and colour rendering to ensure accurate document checks can be made by Synertec's staff.

continued....

Our Solution:

As one of the first organisations within the UK to install Waveguide's revolutionary new LightStar LED luminaire, overall lighting energy consumption has been cut by 80% across all three Synertec sites, providing a staggering lifetime saving of £509,000 and a 1,921Tonne reduction in Co2.

The LightStar 204 and 205 luminaires replaced 142 400w (without ballast) Metal Halides. The LightStar 204 specified at Synertec is just 85w (inclusive of ballast) and the LightStar 205 is just 120w (including ballast).

Waveguide Lighting's LightStar is also incredibly versatile – allowing Synertec to select from a range of wattages (15 to 121w) to deliver between 100 to 123 lumens per circuit watt and providing a total lumen output of between 1845 and 12100. With a bespoke scheme designed by the expert team at Waveguide, Lux levels in all areas of each facility were improved, with the LightStar product delivering 500 lux to Synertec's machines, 400 lux to the floor and 200 lux to the shelves.

Combining this high performance with un-rivalled light distribution from the luminaire enabled Waveguide to install fewer fittings, creating a multiplier effect in terms of energy savings and payback periods for Synertec.

The fitting's 66,000 hour minimum life span means that there is no need for regular maintenance and this lifespan can further be increased to a minimum of 109,000 hours if the driver is replaced at 66,000 hour point.



Testimonial:

"Waveguide handled the proposal and installation process with great detail and efficiency.

"We reviewed several luminaires and the Waveguide product came out on top with fastest payback and best long term savings - whilst also not being over the top on capital cost.

"As promised we have had no maintenance issues - which is a vast improvement on the previous luminaires, saving further money in maintenance costs.

"We are very happy with the lighting. It has cut our costs dramatically whilst also increasing the quality of the light we have in all of our production sites.

"All our staff are extremely pleased with the results."

Tom Baldock, project and facilities manager, Synertec



Vickers Laboratories

Manufacturing - Key benefits:

- Significant energy savings and reduction in Co2 production
- High quality light uniformity
- 5700 Kelvin colour, 75 CRI LED for precision working
- Occupation health standards are met – no flicker or hum
- Sealed, low maintenance luminaires for cleanliness and hygiene



Chemical manufacturer Vickers Laboratories reduces lighting energy consumption by 73% thanks to new LED solution from Waveguide Lighting

The Challenge:

Vickers Laboratories Ltd is a chemical manufacturing facility that can name world-renowned film, TV and theatre production companies as some of its clients.

Vickers Labs also produce the monomer used in the manufacturing process of the latest generation of Silicone-hydrogel contact lenses, sold under the OPTOMER® brand.

Due to increasing demands for their cutting edge products, lab bosses needed to increase their capacity by designing a purpose-built manufacturing facility adjacent to the existing site.

High quality light uniformity and high colour rendering was a key consideration in the design of the new lab to ensure that staff at Vickers Laboratories could create their products and carry out true colour inspection within a well-lit environment. The cleanliness of the light fitting was also an essential requirement given the nature of the medical products created within the lab.

Our Solution:

Waveguide Lighting installed its LightStar 202 LED luminaires in the brand new laboratory, reducing overall lighting energy consumption in the area, providing a lifetime saving of £8,333 and a 22Tonne reduction in Co2.

At the same time Lux levels in the lab were improved, with the LightStar product delivering 500 lux to the equipment and work spaces.

The LightStar 202 (Diffused) specified at Vickers Laboratories is just 43w (inclusive of ballast). The light engine can also be driven at a range of wattages to increase or decrease light levels.

Waveguide's sealed LED lighting units have been designed to stop dust and insects from gathering around warm light fittings, ensuring the laboratory area is kept as clean as possible – an essential requirement for the production of material for medical devices like contact lenses.

The fitting's 60,000 hour minimum life span means that there is no need for regular maintenance and bulb replacement, which again stops dust from being distributed into the atmosphere. The lifespan can further be increased to a minimum of 109,000 hours if the driver is replaced at the 60,000 hour point.

In addition, Waveguide's installation included two occupancy sensors, further maximising on lighting energy savings when members of staff are not working in the lab.



Testimonial:

“Vickers Laboratories Ltd manufactures production chemicals for some of the biggest pharmaceutical and contact lens companies in the world, so quality assurance is absolutely essential.

“Complicated chemical processes are required to take place to create these products and so it is imperative that light quality and light uniformity is at the highest standard possible for our precision working.

“We knew that we needed to source lighting that would not only cut our lighting costs, provide a short payback period and offer long-term energy savings, but wasn't over-the-top on capital cost.

“Waveguide handled the proposal and installation process with great detail and efficiency. We are delighted with the results.”

Steve Foster, managing director, Vickers Laboratories Ltd



Hyndburn Leisure Centre

Leisure - Key benefits:

- Significant energy savings and reduction in Co2 production
- High quality light uniformity
- Occupation health standards are met – no flicker or hum
- Sealed low maintenance luminaires for cleanliness and hygiene
- Shock resistant luminaires for ball game areas



Hyndburn Leisure Centre is brightening the prospects of aspiring sports stars thanks to a revolutionary LED solution from Waveguide Lighting

The Challenge:

Hyndburn Leisure Centre is the largest leisure facility in the borough of Hyndburn, offering 80,000 local residents a huge range of sport and leisure activities.

The Lancashire leisure hub helps to keep the Hyndburn community active and healthy with over 50 classes and organised activities per week, from swimming and yoga to athletics and martial arts.

Following National Lottery funding from Sport England's Improvement Fund, Hyndburn Borough Council identified a number of ways to enhance the leisure centre's facilities, including improving the quality of lighting for its users.

Switching to LED lighting was part of the Council's environmental strategy to improve light levels for the leisure centre's members whilst ultimately reducing associated energy costs and Co2 emissions.

Our Solution:

After researching various options, the Council was bowled over by Waveguide Lighting's new LED technology – which offered the highest quality light uniformity and colour rendering for their busy leisure facility, as well as being extremely low glare.

The team at Waveguide designed a bespoke solution for the sports hall, installing 40 LightStar 205 LED luminaires into the pre-existing high bay infrastructure.

In doing so overall lighting energy consumption was reduced by 64% - providing a lifetime saving of £76,700 and a 266Tonne reduction in Co2. At the same time Lux levels in the area were improved, with the LightStar's delivering 500 lux to the floor.

Waveguide's sealed LED lighting units have also been designed to resist damage from ball games - an essential requirement for a sports hall or indoor play area.

Waveguide installed a further 21 LED luminaires in the swimming pool area, reducing overall lighting energy consumption by 71%, making an annual energy bill saving of £5,200 in the pool area alone.

The fitting's 66,000 hour minimum life span means that there is no need for regular maintenance and bulb replacement, which can prove to be a major benefit for installations above swimming pools and indoor ski slopes. The lifespan can further be increased to a minimum of 109,000 hours if the driver is replaced at the 66,000 hour point.

The lack of heat given off by LED lighting allows further energy savings to be made through reduced air-conditioning systems and is an additional benefit to leisure centre participants in a fitness setting.



Testimonial:

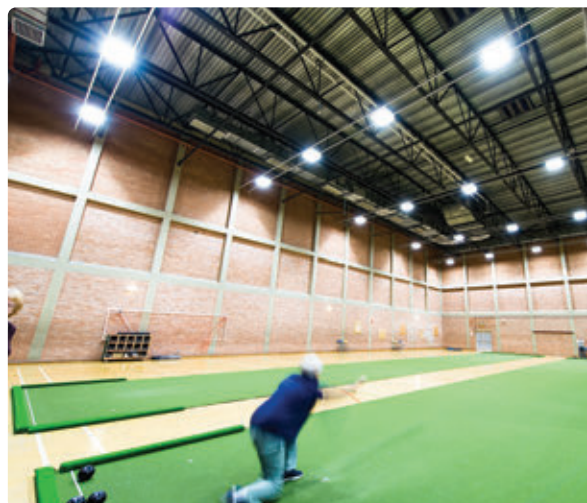
"The leisure centre is used by the community for a huge variety of physical activities; from school swimming classes and gymnastics to over 50's badminton and five-a-side football.

"The Council is always keen to support local businesses, and instructed Waveguide Lighting to design an LED fitting which would improve light levels for Hyndburn's members with minimal glare for their sporting activities.

"Waveguide completed the installation on deadline and well in time for the New Year, which is always a really busy time for the centre.

"The new lighting has been a great success. The scheme has hit a number of targets for maintenance savings, and members have commented on how it has enhanced the centre's environment. It also benefits the Hyndburn community by cutting energy costs and carbon emissions."

Councillor Ken Moss, Cabinet Member for Leisure at Hyndburn Council



IC Resources

Offices - Key benefits:

- Energy savings of up to 80% and equivalent reduction in Co2 emissions
- 5000 Kelvin colour and 80 CRI – significantly enhances the working environment
- High quality light uniformity
- Occupation health standards are met – no flicker or hum
- Low maintenance for the lifetime of the product



Technical recruiters IC Resources are turning to LED technology to energise their offices

The Challenge:

IC Resources is a recruitment company operating in the technical arena. As a result, the company's team have taken a keen interest in the latest developments in LED lighting and its associated benefits to the working environment.

IC Resources required a LED light solution that would not only improve light levels for staff at their Reading offices, but also reduce energy costs and Co2 emissions for the 12 hour a day operation. A key aspect of the project brief was that the installation of new lighting should cause no disruption to the working day of the 50-strong IC Resources team.

Our Solution:

IC Resources approached Litenow Lighting Consultants Ltd who specified Waveguide's WaveStar 202 luminaires (27w including ballast) to replace the existing twin Compact Fluorescents – which were drawing 110w (not inclusive of ballast).

Using patented technology Waveguide's WaveStar 202 delivers 98 lumens per circuit watt and 5000Kelvin, offering the highest quality uniformly distributed light to create the closest environment to natural daylight indoors.

Many studies completed in work settings have found that activities such as reading and typing improve under lighting around 5000K. Human-centric lighting research also suggests that high quality LED lighting improves the working environment and contributes to a greater feeling of wellbeing amongst staff.

In installing the ultra-low energy LED luminaires, IC Resources will save £2,510 on their energy bills annually, which represents a saving of 79%. This will equate to an energy saving of £42,670 over the product's lifetime and will save 191 tonnes of Co2.

Due to the lighting system's design and high-reliability, the WaveStar is extremely low maintenance and will run for 109,000 hours of continuous use. With IC Resources 12 hour a day operation over 5.5 days, the lights will not need replacing for 17 years, saving hundreds of pounds annually in maintenance costs over the product's lifetime and bringing the total savings over the lifetime to £52,628.

The payback period for the installation is just three years and nine months, providing a Return On Investment of 515%.



Testimonial:

"The IC Resources team is hugely dedicated and work at an extremely fast-pace so it is paramount that the environment they work in is as comfortable and well-lit as possible. Reducing our energy usage and associated carbon footprint is something we were also extremely focussed on doing.

"Litenow recommended Waveguide's products to us and we are delighted to say that the Waveguide Lighting solution has delivered on all these collective objectives.

"The installation team caused no intrusion during installation either, which was completed outside of the offices' opening hours, causing zero disruption to day-to-day operations."

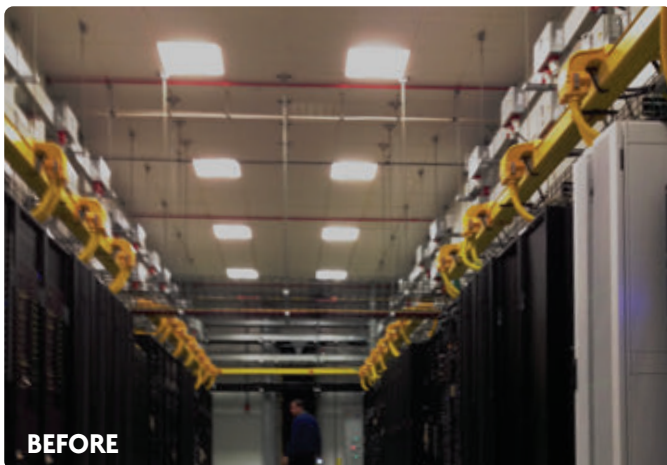
Daniel Nash, IC Resources Director



Data Centres

Key benefits:

- Energy savings of up to 85% and equivalent reduction in Co2 emissions.
- Use of intelligent controls to further maximise savings in a 24 hour/day operation.
- Benign drive currents generate very little heat at the LED/PCB junction, achieving very high efficacies and LED extended lifetimes.
- High quality light uniformity, 5000-5700 Kelvin colour and 80 CRI – significantly enhances the working environment.
- Occupation health standards are met – no flicker or hum.
- Low maintenance for the lifetime of the product.



CBRE Norland Managed Services partner with WaveGuide Lighting Technologies and Waveguide Lighting Ltd to provide innovative LED lighting solutions for data centre operations.

The Objective:

A global IT solutions provider needed a new lighting solution to help dramatically reduce energy costs across one of its data centres. At the same time the new lighting solution needed to improve overall levels of light, particularly in terms of light quality, colour, CRI and uniformity. The chosen solution also needed to reduce overall maintenance associated with the data centre's lighting, particularly in high security areas such as the COLOs and Main Distribution Facility.

The Solution:

CBRE Norland Managed Services approached WaveGuide Technologies to provide an effective lighting solution for the data centre. With their ultra-low energy luminaires and ability to design bespoke precision lighting solutions WaveGuide Lighting Technologies specified Waveguide Lighting Ltd for the project.

By utilising WaveGuide's End Lit Rod technology, WaveGuide were able to design a lighting scheme that dramatically reduced the number of fixtures whilst offering higher levels of uniformity in a number of areas including the COLO's, offices, corridors, stairwells, high value storage areas and external carparks. The expert design team at WaveGuide also removed existing fittings from hard to reach, high risk areas within the COLOs and MDF.

In total 1044 WaveGuide fittings replaced 1641 fittings (a 36% reduction in the number of fittings). This meant that the load was reduced from 193kw to just 49.5kw – an absolute energy saving of 74%. With the integration of PIR sensors in those areas where lights are on 24 hours a day, energy savings will be in excess of 85%.

Lux levels, CRI and light uniformity in all areas across the project were improved. At the same time the proposed fixtures offered a useful LED lifetime of 109,000 hours meaning that the fixtures will operate maintenance free for their entire lifetime (almost 12.5 years for a 24/7/365 operation). This lifetime is backed up by a 10 year fully serviced warranty meaning that Waveguide take full responsibility for the lights, and the client enjoys all the benefits of a maintenance free solution.

In the stairwell areas, the new luminaires were individually fitted with a PIR sensor set to 25% until activated to 100% by staff entering the area. This means there is always light present on the stairwells and energy savings in those areas are increased by over 80%.

Results:

All of the project objectives were achieved:

- 85% energy savings and associated carbon reduction.
- 36% less light fittings installed.
- Light quality – exceptional light levels, uniformity, colour and CRI have been achieved
- The installation has received positive feedback from staff in terms of improving their working environment.
- The products' long life and high reliability, backed up with the warranty means that the client can enjoy these benefits with full peace of mind for the next decade.

Testimonial:

We are delighted with WaveGuide's lighting scheme and the wealth of benefits that WaveGuide's new fittings have delivered for our data centre client. At CBRE Norland Managed Services we pride ourselves on providing a full suite of facilities, energy and project management services. Norland's strategy to deliver exceptional service to our customers is hugely dependent on the capability and delivery of our supply partners.

WaveGuide Lighting Technologies share our passion for quality and service, which are essential values when meeting the demands of a business-critical 24 hour/day data centre operation.

Darren Rennie, CBRE Norland Managed Services

Geoff Reed Table Tennis Centre

Leisure - Key benefits:

- Significant energy savings and reduction in Co2 production.
- High quality light uniformity and CRI.
- Lux levels increased to Sport England's international competition standard.
- Extremely low glare for a competitive sporting environment.
- Low maintenance, shock resistant lights for ball game areas.



Jersey Table Tennis Centre set for International Island Games with new lighting installation.

The Challenge:

Jersey played host to the biennial NatWest Island Games in 2015 – an event on a par with the size of the Sochi Winter Olympics.

Taking its place amongst the sporting events was the highly-anticipated table tennis competition at the Channel Island's Geoff Reed Table Tennis Centre.

In preparation for the Games, the Table Tennis Centre's management team identified that the lighting installed above the nine-table hall fell short of official international competition standards as recommended by Sport England.

It was clear that a new lighting installation was required, and the new luminaires needed to achieve the lux levels necessary for such a prestigious international competition as the NatWest Island Games.

Our Solution:

After speaking with St. Helier based LED Lighting Technology Ltd the Table Tennis Centre's management team agreed that switching to LED was an investment that would meet their exacting requirements, and received assurance that the installation could be fully completed before the beginning of the Games

LED Lighting Technology Ltd's Managing Director Paul Couser recommended Waveguide Lighting's products, which offered the highest quality light uniformity and colour rendering for the table tennis centre, as well as being extremely low glare.

The team at Waveguide sprung into action and designed a bespoke solution for the centre installing 60 LightStar 203 LED luminaires. In doing so overall lighting energy consumption was reduced by 61% - providing an annual saving of £2.5k and 8Tonne reduction in Co2 emissions. Waveguide's design team were aware that Sport England specifies 600 lux for community competitions and 850 lux for national competitions. The new lighting installation has bettered the international standard and achieved 1000 lux, creating an environment suitable for sporting activities featured on TV.

Waveguide's sealed LED lighting units have also been designed to resist damage from ball games - an essential requirement for a sports hall or indoor play area. Using patented waveguide technology Waveguide's LightStar 203 can deliver up to 120 lumens per circuit watt and 5700Kelvin to ensure the lit-environment is at the optimum level for table tennis players.

The fitting's 66,000 hour minimum life span means that there is no need for regular maintenance and bulb replacement, which can prove to be a major benefit for installations above leisure facilities such as table tennis centres, swimming pools and indoor ski slopes.

Based upon an eight hour/day operation the lifetime of the new light fittings equates to 21 years. The lifespan can further be increased to a minimum of 109,000 hours if the driver is replaced at the 66,000 hour point. The lack of heat given off by LED lighting allows further energy savings to be made through reduced air-conditioning systems, and is an additional benefit to sports participants in a competitive setting.



Testimonials:

"The NatWest Island Games is a prestigious sporting event on an international scale, and we were honoured to host the table tennis competition at the Geoff Reed Table Tennis Centre.

"We are delighted to say that the new LED lighting fittings have delivered on all our collective objectives.

"Waveguide's technical engineers caused no intrusion during installation either, which was completed outside of the centre's team training hours, causing zero disruption to day-to-day operations."

Audrey Tupper, President of the Jersey Table Tennis Association.

"Having worked with Waveguide Lighting for a number of years now I knew their LED fittings would improve light levels for table tennis players, creating the ideal environment for the sporting action.

"The new lighting has more than accomplished the project brief. It also benefits the Island community by cutting energy costs and carbon emissions."

Paul Couser, Managing Director, LED Lighting Technology Ltd.

AKW Logistics

Warehousing – Key Benefits

- 74% energy savings and reduction in CO2 production
- Significantly Improved Light Distribution (Uniformity .6)
- Improved Security and Health & Safety
- Payback of 1 Year and 3 Months
- ROI 1171%
- Controls including Ambient Daylight Sensing



Logistics company AKW saves over 74% on energy costs with a payback of 1 Year 3 Months

The Challenge:

AKW Logistics is a leading distribution group and needed to upgrade the lighting in its' Manchester warehouse to save on energy costs and improve the light uniformity to create a safer working environment.

Because different parts of the warehouse may be in use at varying times, switching to LED with both motion and ambient light sensors offered the potential for greater energy savings.

Security is also a key issue as AKW often handle high value shipments for key clients.

Our Solution:

Using Waveguide Lighting's revolutionary Brightstar luminaires combined with the functionality of both motion and ambient light sensors, energy savings of 74% were achieved with a significant increase in light output and uniformity.

194 Brightstar units replaced a total of 289 400w metal halide, quad 80w and twin 70w baton fittings.

The motion sensors dimmed the lights to 20% of their full output when no-one is working in the area while the ambient sensors keep the light output at a set level when operations are in progress adjusting to the amount of daylight present.

With a 24/7 operation, often involving high value consignments, the improvement in light output gave significant benefits in CCTV imaging together with better visibility for fork lift truck drivers improving health and safety in the warehouse.



Testimonial:

"We are delighted with the Waveguide products and the service we have received. The quality of the lighting is exceptional and has benefited the whole operation. We are especially pleased with the CCTV images we are now getting. We have no hesitation recommending Waveguide Lighting to all who wish to achieve such results."

Jason Bradley Operations Manager - AKW Logistics.



Manchester Airport

Airports - Canopy Lighting (External) - Key benefits:

- Energy savings
- 5500 Kelvin, 65CRI for precision working
- High quality light uniformity
- Intelligent controls such as ambient sensors or dimmers to further maximise energy savings
- No heat generated under the lights
- No maintenance costs



Manchester Airport has cut its lighting energy consumption by 63 per cent through a third major Waveguide lighting installation.

The Challenge:

To support Manchester Airport Group's (MAG) bold commitment to be the first airport group to have carbon neutral ground operations by 2015. MAG wanted to further improve their energy reduction levels and quality of lighting in at the Airport by replacing their existing under canopy lighting at Terminal two arrivals and departures, making it easier and safer for travellers to get to and from the Airport. Waveguide Lighting was tasked with creating an installation that would allow MAG to continue to achieve energy reduction targets, whilst providing the simplest and most effective installation solution that would cause minimal disruption to day-to-day operations. Improving light quality and uniformity whilst reducing energy consumption was a given.

Our Solution:

Waveguide Lighting replaced under canopy lighting with its patented C Lite technology, replacing 400 watt (without ballast) Metal Halides with their new C90/700 fitting. This unit uses just 180 watts (including ballast) and replaced the Metal Halides on a one-for-one basis. Installed at a height of nine meters, the C Lite provides more than 180 Lux to the floor.

This has allowed the Airport to cut its lighting energy consumption by 63%

Testimonial:

"Waveguide Lighting is demonstrating right here at Manchester Airport that with forward thinking design it is possible to improve light levels, while reducing energy consumption and carbon impact. Their products have more than exceeded our expectations and we are delighted to have been able to work closely with Waveguide to find the right solutions for different applications within the airport."

Jonathan Beswick, Manchester Airport project technician



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