



diamond optic®

Diamond Optic® - the Ultimate in Flexible, Precise Lighting Control

The requirements for the lighting of areas such as roads, streets, squares, pedestrian areas and car parks etc. - are hugely varied. Road lighting, for example, demands a long, narrow beam extending along the road, while pedestrian areas might require a symmetric distribution of light on all sides of the luminaire. Furthermore, in today's rapidly changing urban environments, light distribution patterns might even have to be modified from time to time as the use of the space changes.

While some small variation in beam direction is possible through moving the lamp in relation to the reflector, specific reflector types or even entirely different luminaires, have generally been required to satisfy the widest range of lighting configurations. However, DW Windsor's unique and revolutionary Diamond Optic® reflector system means that the very same luminaires can be used to create widely different light distribution patterns - and the optic can even be adjusted during the life of the scheme, to meet changing user requirements.

What is Diamond Optic®?

The patented Diamond Optic® system comprises four multi-faceted reflector elements, arranged in the shape of a diamond - hence its name. The four sets of reflectors can be independently adjusted via a simple pivot mechanism to create a wide range of composite light distributions. Each reflector produces a controlled beam that can put light precisely where it is needed - and the four beams combine to make possible a wide range of light patterns, appropriate to most types of area lighting installation.

The reflector components are usually factory set to one of several standard configurations - but they can be fine tuned or reconfigured

on site if necessary. Suitable for use with most types of lamp, including metal halide, SON and compact fluorescent, Diamond Optic® comes in five basic sizes, to fit almost all DW Windsor's comprehensive range of luminaires. All beam configurations offer excellent cut-off to control glare and minimise light spill and light pollution.

Diamond Optic® - a Flexible Lighting Design Tool

The Diamond Optic® system gives engineers and designers the freedom to precisely tailor their lighting to the physical shape and use patterns of the space being lit. For example, the same luminaire can be set up to offer a long rectangular distribution for road lighting, a wider rectangular pattern for wide roads and pedestrian precincts - or a more or less square formation for car parks. In a roadside situation, 'back lighting' to the adjacent pavements can be created to facilitate pedestrian safety; while in a layout where buildings stand close to the road, 'back light' can be virtually eliminated, to minimise spill light into windows.

Tailoring the light pattern to the specific area being lit also gives the planner freedom to place lighting columns where they look best, rather than being forced into layouts determined by inflexible light distributions. Equally importantly, the use of the Diamond Optic® enables column spacings to be increased, reducing the total number of lighting units required by up to 30%.

In summary, Diamond Optic® is a highly flexible design tool and the benefits it offers to lighting designers and engineers in terms of reduced costs, functional flexibility, lighting precision, maximum efficiency and minimal disruption are almost incalculable.

In the future we can expect all reflector systems to offer some degree of versatility - but only Diamond Optic® can offer tomorrow's lighting design capabilities, today.



We are proud to be the first lighting company ever to receive the prestigious Queen's Award for Environmental Achievement. The Award is granted in recognition of continuous achievement in environmental performance and underlines the efficiency of the Diamond Optic® system in controlling light pollution and the effective use of energy.



Diamond Optic® : a highly flexible and effective reflector system

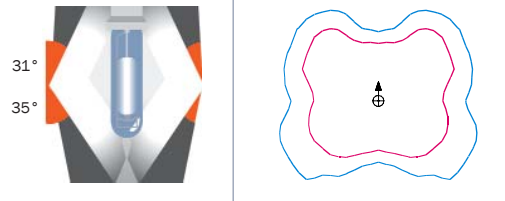
The example here illustrates the full flexibility, functionality and maximum efficiency that can be achieved with Diamond Optic®. One luminaire type is used throughout this multi-area scheme, with different Diamond Optic® settings, to create the optimal lighting performance for each area.

C (31/35)

Typical Applications:
Open areas
Car parks (from centre)

This setting splits the distribution equally around the column and can dispense with the need for two luminaires on each column.

Rule of thumb:
Generally, space columns at $5 \times$ the mounting height to achieve 20% uniformity.



Rules of Thumb

The rules of thumb given on this page are intended as a starting point for lighting design calculations. Fine tuning and performance prediction should be calculated using our photometric data (available on our website and a separate CD-ROM).

B (10/10)

Typical Applications:
Footpaths
Cycle paths

Reflector pairs are pulled in to 10° to create a near symmetrical lozenge-shaped isolux template.

Rule of thumb:
Spacings in excess of $7 \times$ the mounting height are achievable (generally a ratio of $6 \times$ the mounting height is recommended).

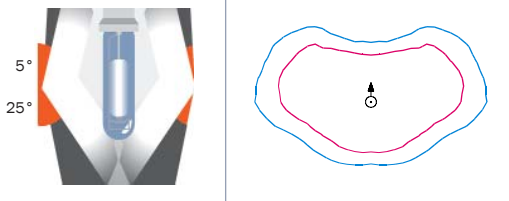


D (5/25)

Typical Applications:
'Standard' roads
Wide pathways

The 5° reflectors light the near side pavement, the 25° reflectors light a 'standard' road-width across from the luminaire.

Rule of thumb:
Use if the width to be lit from the luminaire to the farthest point across from it is $1.5 \times$ the mounting height or less.



A (5/35)

Typical Applications:
Wide roads
Car parks (from perimeter)

The 5° reflectors light the near side pavement, the 35° reflectors light wide distances across from the luminaire.

Rule of thumb:
Use if the width to be lit from the luminaire to the farthest point across from it is $1.5 \times$ the mounting height or more.

