Solarspot® tubular daylight systems

Daylight solutions for the built environment

BRE independent testing of light pipes – report summary

Solarspot commercial product range

SOLARSPOT

Solarspot D-38 versus Sunpipe 450 & Solatube 290DS

Sunpipe Solarspot Solatube

When considering a daylight system for your next project, how do you evaluate which of the plethora of systems available will deliver the levels of light that you are looking for. The attitude of most suppliers has been to avoid the issue of performance and efficiency, preferring to bamboozle with marketing waffle about patented technologies or unsupported claims comparisons with electric light bulbs.

Building Research Establishment

In order to bring some quantifiable science to the situation, we asked the BRE (Building Research Establishment) to take our Solarspot® D-38 system and compare it to a Solatube® 290DS and Sunpipe® 450 and test them to see which was the most efficient at delivering daylight – when you think about it, what other reason is there for including light pipes in your specification? We've also referenced a couple of the very popular flexible duct systems to see how they perform.

So why test these systems and sizes?

There are many systems and sizes available and it would be impractical, and expensive, to test every single system and size on the market, so we picked the UK's best-selling rigid systems; the Sunpipe from Monodraught and the Solatube. The Sunpipe system has a diameter of 450mm and a claimed reflective value of 98% whilst the Solatube has a diameter of 350mm and reflective value of 99.7%, so the Solarspot (375mm diameter) sits in between.

All three systems were just over 2m long and the tests were carried out under a natural overcast sky – this is Britain after all. The tests were performed at the BRE's headquarters in Garston, Hertfordshire.

The test results and what it means in terms of light delivery

Each system was tested three times to ensure that there were no spikes in light or freak results and the average efficiency of the three readings is given as the result.

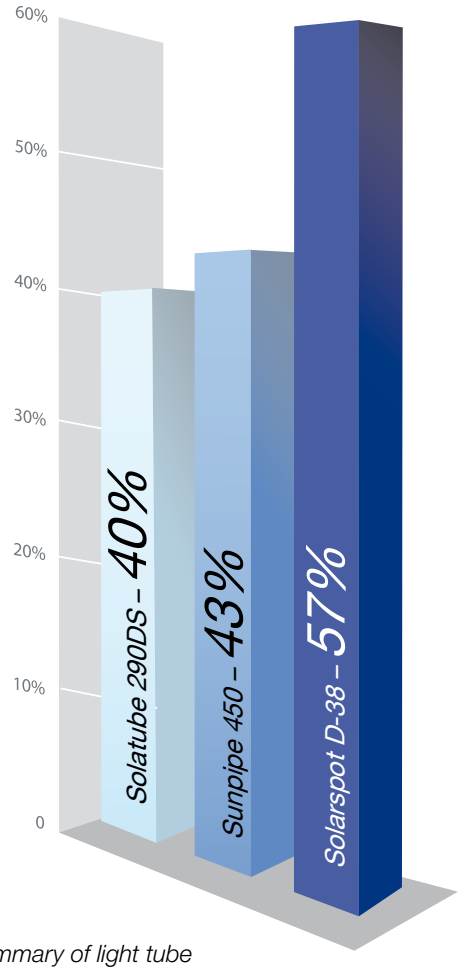
As the graph shows, the clear winner in efficiency terms is the Solarspot D-38. So what does that mean in terms of light delivery?

Simply put, two systems side-by-side, with the same length and diameter, but one with a 60% efficiency rating and the other with only 40%, the 50% advantage in efficiency would deliver 50% more light. But not all systems have identical diameters so this variation also needs to be taken into account.

For example; if you put a Solarspot D-38 and Solatube 290DS together – as suggested above – because the Solatube is 25mm narrower, it has less volume. As a result, the Solarspot would be delivering around 69% more light in the same conditions.

Flexible-duct systems

Easily the best selling systems in the UK, flexible duct systems can be a very tempting option for designers and contractors, but how much light do they actually deliver? In tests previously carried out by the BRE measuring the efficiency of two 350mm diameter flexible-duct systems. The best figures that the flexible unit were able to return were only around 6%. This was with the ducting being pulled tight and with the tube completely straight. In reality the tube will not be totally straight and would have some slack in it; given this more realistic scenario the figures are likely to be nearer 1.5-3%.
Test report number 280962.



Summary of light tube transmittence under overcast sky conditions

> "Taking the three double/single glazed tubes, the Solarspot with Convas lens product had the highest transmittance, 0.57, compared to 0.43 for the Monodraught and 0.40 for the Solatube. In relative terms, it was 33% more effective than the Monodraught at transmitting light, and 44% more effective than the Solatube."

If you would like to read the full report from the BRE you can download it from our website at www.solarspot.co.uk

Solarspot D-25

The smallest system in the range and designed for domestic installations and smaller areas of commercial buildings. At only 250mm in diameter, the D-25 will fit in to virtually any building structure.

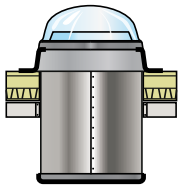
Ideal for:

- Bathrooms
- En suites
- Corridors
- Landings
- Hallways

Secification

Diameter	250mm
Max length	7m
Coverage	12sqm

For use with plaster-board, suspended and open-ceilings. Square and round diffuser styles available.



Solarspot D-38

This mid-sized system is designed for larger domestic installations and smaller areas of commercial buildings. At just 375mm in diameter, the D-38 will fit in to most building structures without the need for structural alterations.

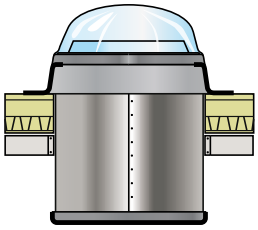
Ideal for:

- Large bathrooms
- Kitchens
- Corridors and entrance halls
- Living rooms
- Smaller offices

Secification

Diameter	375mm
Max length	11m
Coverage	22sqm

For use with plaster-board, suspended and open-ceilings. Square and round diffuser styles available.



Solarspot D-53

Used on its own, the 530mm system is ideal for lighting medium sized spaces or it can be used in multiples for lighting larger offices, classrooms or commercial spaces. The 530mm diameter allows it to fit through most commercial building structures and roofs.

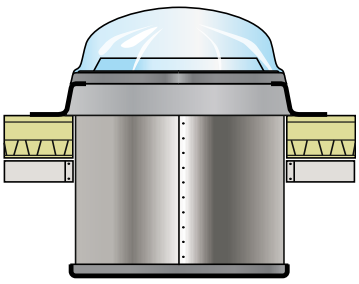
Ideal for:

- Offices
- Workshops
- Smaller manufacturing facilities
- Wider corridors
- Classrooms

Secification

Diameter	530mm
Max length	15m
Coverage	32sqm

For use with plaster-board, suspended and open-ceilings. Square and round diffuser styles available.



Solarspot D-65

This 650mm diameter unit is designed to be used in multiples to light larger spaces with high ceiling levels. The unit can be used as a simple lamp unit for lighting open-ceilinged industrial spaces, or it can be supplied with adjustable angles and extensions, allowing for daylight to be piped over distances of 20 meters plus, into the heart of a building.

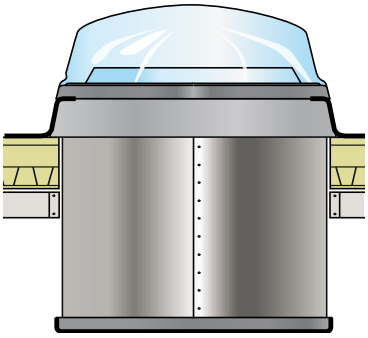
Ideal for:

- Manufacturing facilities
- Warehouses
- Retail sheds
- Entrance galleries
- Sports arenas and centres
- Logistics and distribution facilities

Secification

Diameter	650mm
Max length	20m plus
Coverage	50sqm

For use with plaster-board, suspended and open-ceilings. Square and round diffuser styles available.



Solarspot D-90

The largest Solarspot system in the range, with each unit capable of lighting areas of up to 95 sqm. The system ideally suited for lighting large open spaces with high ceilings.

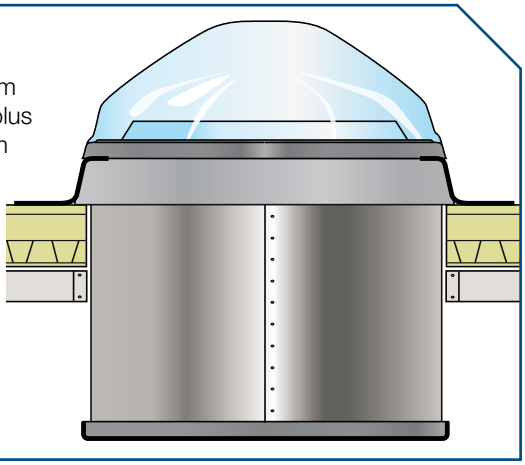
Ideal for:

- Manufacturing facilities
- Warehouses
- Retail sheds
- Exhibition spaces
- Sports arenas and centres
- Logistics and distribution facilities

Secification

Diameter	900mm
Max length	30m plus
Coverage	95sqm

For use in open ceiling environments.



With patented light harvesting technologies and the world's most reflective transition tubing, Solarspot systems are able to deliver more daylight over longer distances than any other light pipe system on the market.


a

a. Office building in French Polynesia uses multiple Solarspot D-53 systems and square diffusers with transition boxes to integrate perfectly with a suspended ceiling.


b

b. Reception area in Italy uses a D-38 open ceiling unit to bring natural light into a dark corridor area.


c

c. A French school uses multiple Solarspot D-53 systems with transition boxes to light the internal corridors.


d

d. This lecture theatre in a Hungarian college uses six Solarspot D-38 units with round ceiling diffusers provides the daylight for this windowless room.


e

e. Multiple Solarspot D-63 open-ceiling lamp units to provide all of the natural light for this new-build manufacturing facility in The Netherlands.

The Solarspot technical department is able to supply full lux calculations and CAD drawings for any commercial project. For advice or technical support, please contact us on **01908 299117** or visit **www.solarspot.co.uk**

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