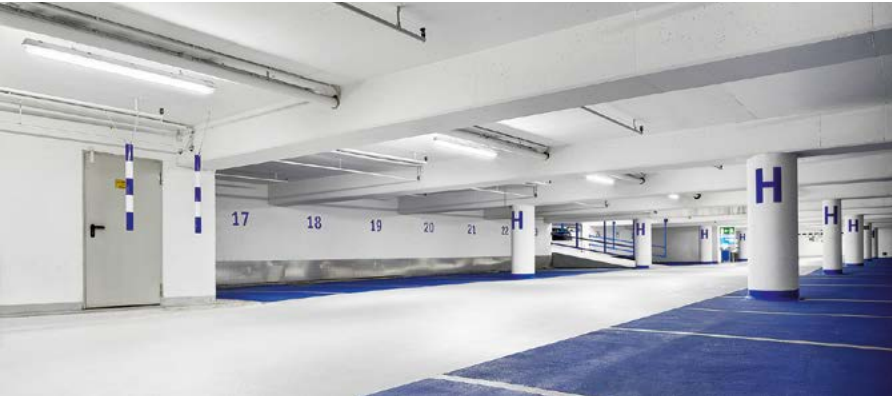




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APAG car park

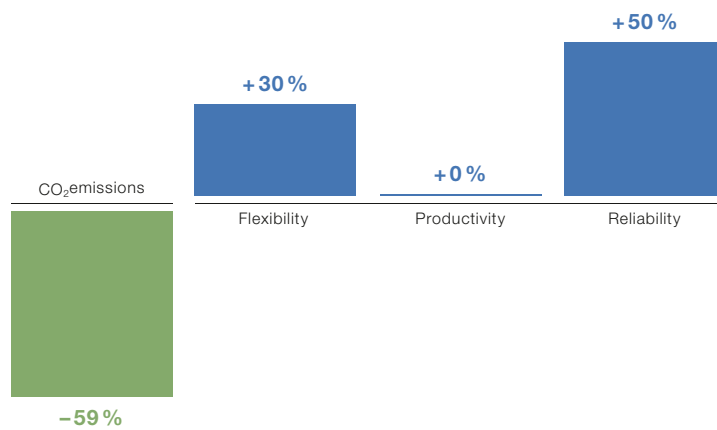
Pleasant, bright, reliable and efficient: LEDs and presence detectors meet drivers and users requirements.



More light for customers, less electricity for lighting

This car park has a total floor space of 13,500 m² and is operated 24/7. Both parking levels are underground and therefore have to get by without any daylight. The energy consumption of the previously installed lighting system using T26 fluorescent tubes was correspondingly high. Sustainability and energy efficiency were the primary objectives of this refurbishment. The DALI-dimmable SCUBA LED IP 65 luminaire with presence-based control turned out to be the perfect solution. This diffuser luminaire with wide-angle light distribution has resulted not only in a considerable reduction of energy consumption; it provides better illumination for the parking bays as well.

zumtobel.com/Industriallighting



APAG car park, Aachen | DE

Operator: Energieversorgungs- und Verkehrsgesellschaft Aachen | DE

Design and installation: Frings Elektro-Installationstechnik GmbH, Alsdorf | DE

Lighting solution: SCUBA LED IP 65 diffuser luminaires, presence-based control

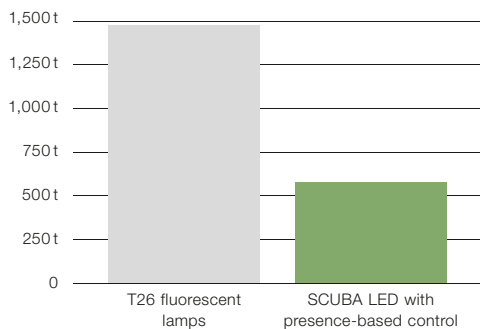
1. CO₂ efficiency and cost efficiency

-59% CO₂

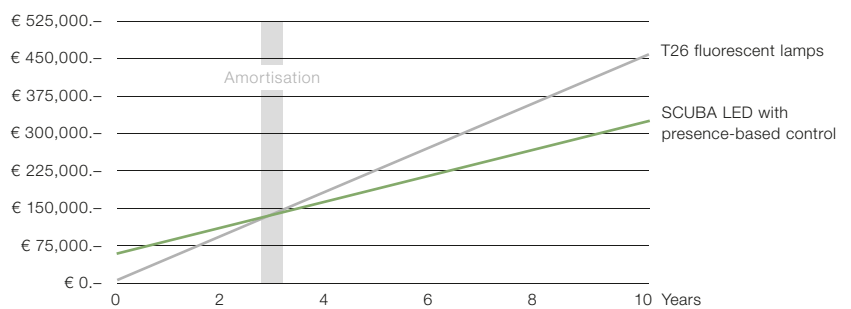
LEDs and presence-based control cut energy consumption

Just changing over from 58W T26 fluorescent lamps with conventional ballasts to premium LED technology yielded energy savings of 15 percent. The dimmability of the diffuser luminaire contributes further to overall efficiency. The luminaire uses presence-based control to dim the lighting level down to 20 percent as soon as the presence detectors indicate that there is no activity on a parking level. When a car drives into the car park or a pedestrian enters a parking level, the lighting is dimmed up again to the requisite 80 percent level needed to ensure illumination in conformity with standards. The lighting level in front of staircases is reduced to 50 percent when they are not in use. The installation is expected to save 865 tonnes of CO₂ over the next 10 years thanks to this functional combination of LEDs and presence-based control.

CO₂ emissions over service life (10 years)



Payback period: 3 years (total costs)



2. Flexibility

+30 %

Light only when needed

The underground car park operates 24 hours a day and relies entirely on artificial lighting. Despite all the efforts to save energy, car park users' safety is the paramount concern. This is why the car park is never entirely dark. A lighting level of at least 20 percent is ensured round the clock and, in areas in front of the staircases, luminaires are only dimmed down to 50 percent when they are not in use. As soon as the presence detectors signal any activity, the luminaires are dimmed up to 80 percent. Passageways and staircases are continuously brightly lit. This ensures that customers feel safe and in good hands at all times.

Luminaires and presence detectors on parking level 1



3. Productivity

The classic criteria for assessing productivity is not really relevant in a car park. In car parks, the emphasis is on convenience and feeling safe, and the APAG car park in Aachen attaches great importance to these factors. SCUBA LED combines good efficiency and robustness with premium lighting quality and a consistent luminaire appearance. Its batwing beam pattern ensures uniform light distribution, while built-in prism-structures optimise the luminaire's light output ratio and minimise glare.

SCUBA LED: a smooth customer



SCUBA LED bears the eco+ label for especially resource-friendly products. For more information on eco+, please visit zumtobel.com/eco

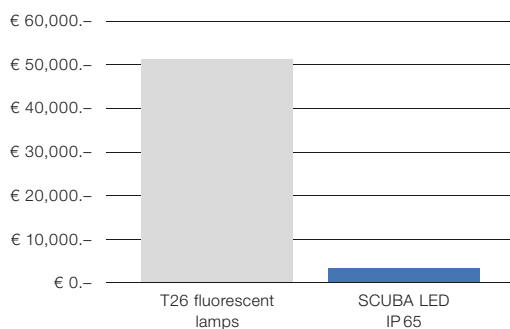
4. Reliability

+50 %

Long service life despite harsh environmental conditions

A car park makes heavy demands on the strength of a luminaire. There are high levels of soiling, incoming cars and rain-soaked people which creates lots of moisture on the parking levels. A high level of reliability is achieved at APAG Aachen thanks to the distinctive features of the LED luminaires. Their long service life and IP 65 protection reduce maintenance costs for SCUBA LED luminaires to a minimum. In these often cool surroundings, LEDs cannot fail to impress with higher luminous flux levels and shorter switch-on times compared to T26 fluorescent tubes.

Maintenance costs over service life (10 years)



IP 65



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Top quality – with a five-year guarantee.

As a globally leading luminaire manufacturer, Zumtobel provides a five year manufacturer's guarantee on all Zumtobel branded products subject to registration within 90 days from the invoice date and in accordance with the terms of guarantee at zumtobel.com/guarantee.

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