

*Through  
light,  
we care.*

**MAGAZINE**

*2012/13*

zumtobel group

# EDITORIAL

In the Zumtobel Group we are able to draw on many years of tradition when it comes to the issue of sustainability. It is above all our employees who breathe life into our commitment, whether it be by developing innovative and energy-efficient lighting solutions, working in corporate environmental protection or cooperating with customers and suppliers within the framework of our social commitment. It is they who bring our corporate values to life and make such an important contribution towards our sustainable business success through their *Passion, Performance and Partnership*.

Building on our vision – *Through light, we care* – we have been setting ourselves objectives on a regular basis for five years as part of our effort to expand our ecological and social commitment one step at a time. Our annual Sustainability Report is enabling us to make our progress (and also certain challenges) public.

For this issue, we opted to produce the report as a magazine containing exciting contributions and personal interviews, and to add a structured facts section containing extensive data, including the GRI framework. On our website you can also find more information, useful knowledge about light & sustainability and the latest news. All our previous reports are also available as downloads.

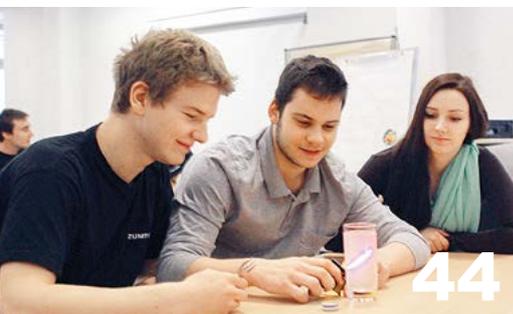
I hope you'll find this issue an inspiring read.

Astrid Kühn-Ulrich

Sustainability Officer

PS: We welcome your feedback. Just fill in the questionnaire on the Internet to provide feedback, or email to [astrid.kuehn@zumbel.com](mailto:astrid.kuehn@zumbel.com)

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# AN INTERVIEW

*In the Zumtobel Group, sustainability and corporate strategy are closely interwoven. At the end of the business year, sustainability officer Astrid Kühn-Ulrich talked with CEO Harald Sommerer about current challenges as well as the limits and opportunities of reporting:*

*From your point of view, just how sustainably oriented is the Zumtobel Group today?*

**HS:** We are in a position to make a valuable contribution, especially with a view to energy efficiency. The technical solution approaches and the products that we are developing for all our three brands are based on energy efficiency in a very essential way. More generally speaking, in all our decisions, we always take care to act as sustainably as possible. A sustainable investment must meet all criteria regarding the environment, efficient use of resources and quality, on the one hand, but beyond that we must also think about how flexibly we should respond to future changes, for instance with respect to using a new machine for as long as possible, even if product life cycles are getting increasingly shorter. We consider the topic of sustainability to be firmly planted in our corporate values and HR activities. So, one may certainly say that we as the Zumtobel Group are dealing with sustainability in a universal manner.

*On the topic of LED: this digital light source definitely makes a huge contribution towards energy efficiency; on the other hand, development cycles similar to those in consumer electronics are foreseeable. Is that really sustainable?*

**HS:** There is one major difference. In consumer electronics, we are dealing with lifestyle products within a price range that encourages consumers to replace a product, even if there is no necessity to do that. Due to the fact that professional luminaires are installed devices whose benefit is largely based on low energy costs, it does not pay for investors to exchange the product after a short period of time. As a business enterprise, we obviously need to adjust to shorter innovation cycles, ensuring that our products meet the latest state of the art but don't make customers think more short-term.

*Two years ago, you initiated a global growth strategy. However, European markets in particular are in a state of continuing stagnation – how have you managed to stay on track?*

**HS:** We have toned down our growth targets, but we are still striving to gain market shares. In areas where our costs had increased excessively, we have reduced them again. We have taken a look at our products, at the areas of development and marketing to see what we can do better and more efficiently, and we have taken the corresponding measures. This year, too, we have achieved partial successes, e.g. while Zumtobel did not manage to grow, we have nevertheless improved the result. At Tridonic, we have recorded some decreases due to the changeover to LED, but we have compensated them with new products as best we could. But above all, we have been able to successfully adjust our cost base. At Thorn, we had marked drops especially in wholesale business. Now we need to compensate that through increasing growth in Asia and insourcing of currently outsourced products.



*Shareholders versus stakeholders: which stakeholders do you as CEO feel committed to?*

HS: One needs to be committed to all stakeholders and understand the needs of the individual groups. For the shareholder that would certainly be added value. Obviously, one very important group are our employees. It is in difficult times in particular that we need to explain where we stand and why we are acting in a certain way. This year, we certainly had some cuts – and it is extremely important to explain that and to implement adequate measures jointly in a cooperative spirit. Naturally, in our business model the customers are on the top rung. But also our suppliers and technology partners are becoming increasingly important. Today, we can no longer have all the know-how in-house. Our value of “Partnership” applies to all stakeholders, and the point is to build long-term, stable partnerships with all of them.

*You are currently publishing the fourth Sustainability Report. What do you gain from this kind of transparency, and where do you see difficulties with respect to the reporting?*

HS: The Report always provides a good summary of our activities; at the same time, it is a huge challenge to make the topic catchy. In our keenly project-driven business with some very different products, the classic input/output ratios, e.g. consumption values in production, do not always work, so we must rack our brains to describe our progress not only in terms of quality, but to also make it catchy in terms of quantity.

*Keyword “technology change”: the supply chain and also the competition are increasingly shifting towards Asia. What kind of challenges do you see in environmental and social terms?*

HS: In our short-term project business, we are not causing any substantial impact through global transport. The luminaire is a bulky product. Accordingly, air transport is not really an option, and transport by sea takes too long. In the luminaire business, we will continue to produce locally for the major part. LEDs can travel easily and thus can be manufactured anywhere, but as soon as we go for ballasts, we are again talking about heavy products with logistics costs playing an increasingly important role. With a view to humane working conditions, I don't see as many risks in electronics as in other industries. Electronics companies in Asia are also competing for highly qualified staff and need to create optimal working conditions to keep them. The companies that we consider to be high-grade within the scope of our supplier accreditations always offer reasonable working conditions actually quite similar to those prevailing in Europe. Moreover, we check on social and environmental aspects within the scope of audits.

*This year, you have developed an overall corporate citizenship concept for the first time. What is the message?*

HS: We have created a framework to define where we as the Zumtobel Group can make an effective contribution. Our commitment must make sense with respect to the organisation and to our stakeholders. On this basis, we can now take reasonable decisions.



Harald Sommerer, Zumtobel Group CEO, “It is true to say that our commitment to sustainability is extremely wide ranging.”

### Life cycle assessment (LCA) of a luminaire<sup>7</sup>

# 19%

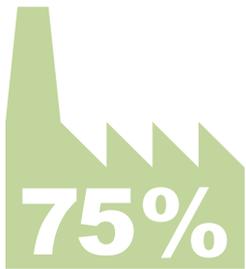
Artificial lighting accounts for a considerable proportion of all worldwide energy consumption.<sup>1</sup>



# 90%

### operation

- 7% manufacture
- 1% transport
- 1% raw materials
- 1% recycling



of all office and industrial lighting in Europe is still obsolescent and inefficient.<sup>3</sup>

# THRO LIGHT WE CY

Fluorescent lamps still produce 70% of all artificial light worldwide.<sup>3</sup>



## Potential savings<sup>5</sup>



Daylight-based control: as much as **70%**



Presence- and time-based management: as much as **50%**



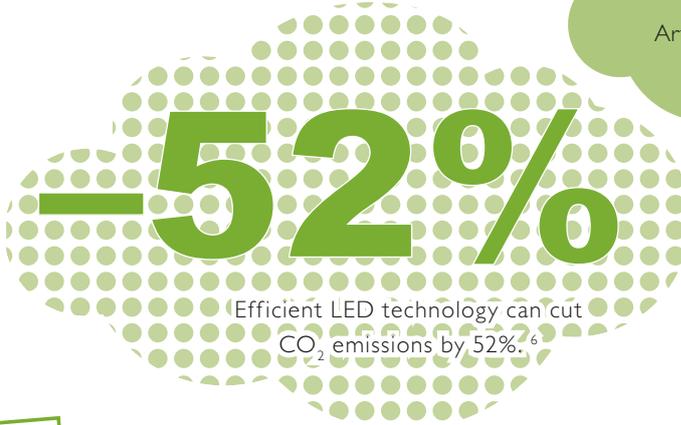
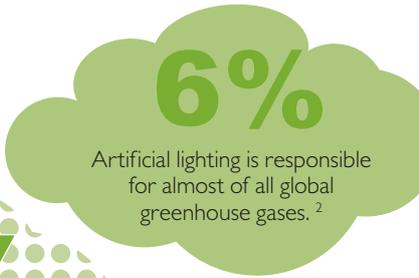
Maintenance control: **10-15%**

# 642,289

In 2012/13, Zumtobel Group brands marketed products that delivered potential energy savings of 642,249 MWh.<sup>10</sup>



Usage optimisation by using a lighting control system <sup>9</sup>  
 Energy costs –79.0%  
 CO<sub>2</sub> saving –14.9 tonnes per year  
 Payback period 3.3 years



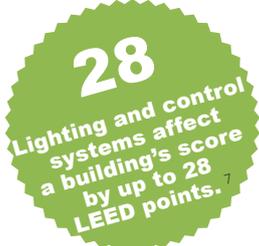
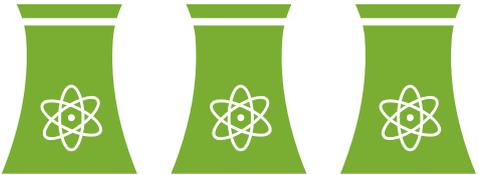
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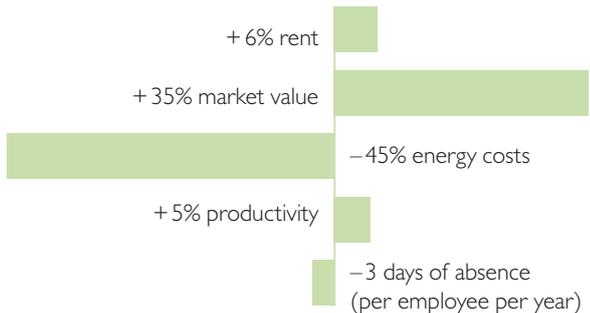
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## 2020

Switching over entirely to LEDs by 2020 would make it possible to shut down three nuclear power plants in Germany. <sup>8</sup>



### Environmentally-certified buildings produce the following effects <sup>7</sup>



**“It is more sustainable not to consume power in the first place by using energy-efficient lighting than to generate power from renewable sources!” <sup>4</sup>**



# *Product stewardship and customer dialogue*



# 75%

**less energy**

LifeCycle Tower ONE in Dornbirn, ▶ page 9

## Projects

### The future of urban building – LifeCycle Tower

The LifeCycle Tower ONE (LCT ONE) in Dornbirn is the first uncased timber high-rise building in the world. It impressively shows the future of urban building, using innovative technologies, the latest scientific findings, as well as a resource-saving method of building. An absolute novelty with respect to the eight-storey building implemented by Cree GmbH, a subsidiary of the Rhomberg Group, as client, as well as by the Hermann Kaufmann architects' studio: the weight-bearing elements of the building are made of timber and are not fitted with panels. Thus, even inside LCT ONE, the uncased timber structure is visible, saving resources and contributing to the fire control concept at the same time.

In order to achieve the ambitious targets with respect to sustainability and quality, top performance was required from all building services. For LCT ONE, Zumtobel developed a trend-setting lighting solution that maximises lighting comfort, reduces energy costs and increases efficiency. Apart from highly advanced office lighting, the LUXMATE LITENET lighting management system was used throughout the building, combining complex system features such as use of daylight, blinds control, presence detection, integration of emergency lighting and predefined room profiles to form a central, easily operable entity. Through optimal use of daylight in combination with a total of 112 presence detectors, up to 75% of lighting energy are saved in comparison to conventional lighting solutions.

LCT ONE's unclad timber structure can be directly experienced inside the building. This saves resources and is also part of the fire protection concept.



The leafy atrium is a real eye-catcher.

### A paragon of sustainability – City Green Court, Prague

The City Green Court opened in January 2013 and set new standards for sustainable building in the Czech Republic. For natural green not only plays an important role in the outside areas of the eight-storey office building, but can also be experienced – in particular – inside the building. All building services combined have contributed to the building being the first to be awarded LEED Platinum certification in the Czech Republic.

The architects of Richard Meier & Partners from New York have developed a holistic sustainability concept for the eight-storey building inspired by Czech cubism. Apart from the intelligent integration of daylight, this concept is based, among other things, on a specific ventilation system ensuring natural circulation of air, as well as on using rainwater to irrigate the green roof. Already before the completion of construction work in 2012, the City Green Court was awarded LEED Platinum, since energy savings already exceeded those required for certification by 22%. Zumtobel has also contributed to this excellent performance through its sustainable lighting concept. By using advanced LED luminaires in combination with the LUXMATE PROFESSIONAL daylight-based lighting management system, natural light is exploited to best possible effect. Additionally, the energy-saving lighting solution is supported by presence detectors.



Zumtobel developed a trendsetting free-standing luminaire for Credit Suisse's office concept.

► [SWARMCONTROL, page 8](#)

## Sustainable working culture – Credit Suisse, Zurich

The new building of Credit Suisse in Zurich, "Uetlihof 2", is a beacon project representing social and environmental sustainability at the same time. Among others, the largest Minergie-P-Eco building so far was awarded the Watt d'Or 2013 – a prize awarded by the Swiss Federal Energy Agency for top performance with respect to energy.

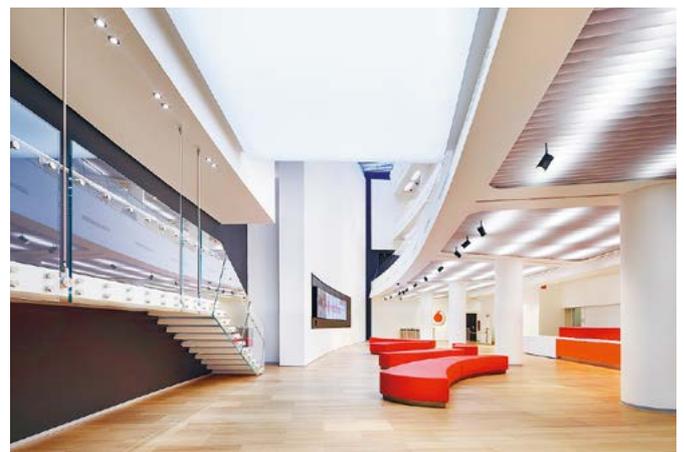
Within the scope of the Smart Working office concept of Credit Suisse, Zumtobel has developed a trend-setting free-standing luminaire in close cooperation with the client. In this context, it was not only essential to meet the high requirements with respect to energy efficiency, but also to offer maximum lighting comfort to some 2,500 employees.

The SFERA free-standing LED luminaire featuring innovative SWARMCONTROL technology was created from this product development partnership. SFERA combines intelligent technology, minimalist design and efficiency in application. SWARMCONTROL provides for the communication of the luminaires among each other as well as anticipatory adjustment of lighting scenes depending on available daylight as well as on the presence and motion of persons in the office. Additionally, every staff member can adjust the lighting scene at any time to suit his/her personal needs. The low installed load of 70W and high luminaire efficiency of 90lm/W as well as a service life of the LEDs of up to 50,000 hours emphasise the sustainability of the luminaire.

## Intelligent use of resources

Hardly any other Italian city is so consistent in its striving for environmental sustainability and future viability as the fashion metropolis of Milan. This is also evident in the new company headquarters of the world's second-largest telecommunications provider: Vodafone. By using resources intelligently, the Vodafone Village consisting of three linked buildings has effectively reduced the environmental burden by 50%. The LEED Silver certificate emphasises the ambitious project of architects Dante O. Benini & Partners, which also demanded innovative solutions from the partners involved. In an area of more than 67,000 m<sup>2</sup>, Zumtobel has implemented a versatile lighting solution that both saves energy and minimises maintenance costs while meeting the high demands with respect to aesthetics and lighting quality.

In the process, the most varied lighting tasks are being fulfilled; in the lobby, in the auditorium and in the Skybar, the architecture is skilfully presented to best effect, at the same time providing for a friendly atmosphere, while in the offices ideal prerequisites are created for the various visual tasks. A comprehensive product portfolio has enabled Zumtobel to realise an adequate lighting solution for all areas, also integrating central emergency lighting control that not only guarantees the safety of the staff but also contributes substantially to the sustainable concept of the building through energy efficiency and maintenance comfort.





**eBox ONLITE central**

- First TÜV-certified central emergency power supply system.
- Combined with LED emergency and escape sign luminaires, eBox saves up to 60% of energy and allows for the use of smaller batteries.
- In just a few steps, the intuitive installation guide ensures that the system is ready for use as well as safe operation.
- Easy maintenance: web-based remote maintenance of the system is possible at any time, without the need for any additional software.



**MAINTENANCE**

**Zumtobel Services**

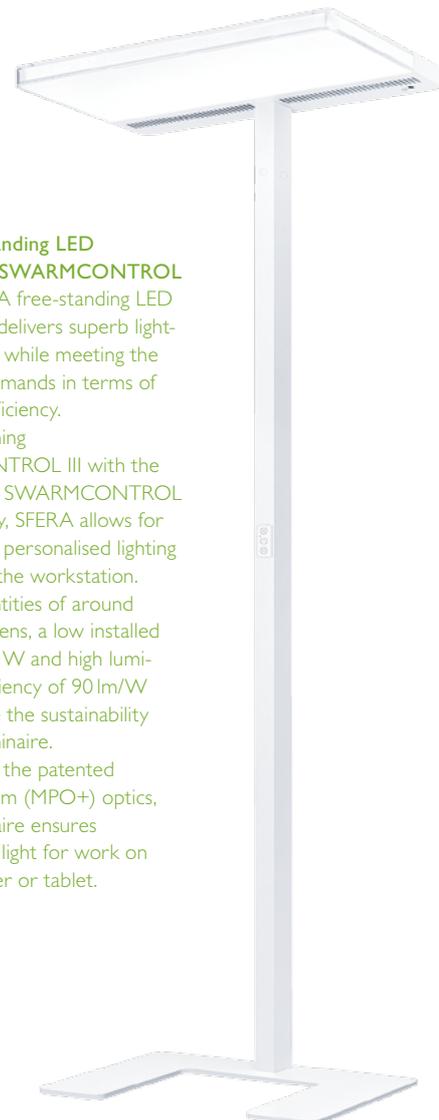
- New Zumtobel range of MAINTENANCE Silver, Gold and Platinum services.
- Through regular maintenance, Zumtobel Services ensure optimisation of the lighting solution, for maximum performance even after operational or spatial modifications.
- By optimising the system on a regular basis, energy consumption can be reduced by up to 15%.
- Moreover, consistently perfect lighting quality increases the employees' productivity and reduces the risk of accidents.



**GRAFT LED high-bay luminaire**

- The Graft LED high-bay luminaire is setting new standards when it comes to high precision and efficiency in industrial lighting.
- A luminaire efficiency factor of up to 100lm/W and luminous power up to 28,000lm with power consumption of 280W underscore this luminaire's outstanding performance.
- Innovative lens technology enabling precise direction of light without overlapping luminous fields enhances the uniformity and efficiency of every lighting solution.
- The patented stack effect ensures optimum thermal management and relatively little maintenance effort.
- GRAFT is also compatible with a variety of lighting management systems, thus maximising both energy and CO<sub>2</sub> savings.

**Products**



**SFERA free-standing LED luminaire with SWARMCONTROL**

- The SFERA free-standing LED luminaire delivers superb lighting quality while meeting the highest demands in terms of energy efficiency.
- By combining SENSCONTROL III with the innovative SWARMCONTROL technology, SFERA allows for maximum personalised lighting quality at the workstation.
- Light quantities of around 6,600 lumens, a low installed load of 70W and high luminaire efficiency of 90lm/W emphasise the sustainability of the luminaire.
- Thanks to the patented micro-prism (MPO+) optics, the luminaire ensures glare-free light for work on a computer or tablet.



## Initiatives

### 1 | Expansion of the successful Lighting Solution Partner programme

To increase people's awareness of sustainable lighting solutions, Zumtobel has been training "Zumtobel Lighting Solution Partners" (LSP) for over six years already.

In line with the Zumtobel motto "The best light for people and the environment", the participants of the LSP programme strive to reconcile lighting quality and energy efficiency within the scope of customised lighting solutions and accordingly to offer their customers the best possible added value.

At the end of August 2012, the first seminar for young lighting solution partners (LSPs) was held. Since apprentices in the third year of apprenticeship are frequently on site alone, get into contact with customers and accordingly also have an advisory function, it was important to also support apprentices with a specific range of courses offered.

With the Lighting Competence Programme (LCP), addressing the target group of electrical consultants, the LSP programme is now going to be extended. The LCP also consists of three pillars: support by the Zumtobel field service and special design tools, access to exclusive information as well as seminars on current topics.

### 2 | Environmental certification – driving sustainable building

Sustainable buildings are in. Environmental certification of buildings supports this trend by providing for transparency and comparability. Since lighting is very important within the scope of the certification of buildings – an optimal lighting solution will bring up to 28 points, for instance during LEED certification (of a maximum of 110) – this is also an important opportunity for Zumtobel to make its networking partners enthusiastic about sustainable lighting solutions.

In 2012, therefore, LEED training events were increasingly held for in-house sales staff at Zumtobel. The participants had an opportunity to pass an examination that entitles them to collaborate in LEED building certification projects as consultants. Moreover, there was a two-day seminar to prepare for the LEED Green Associate (GA) examination planned to take place in autumn 2013. A marketing initiative – the Green Building Certification Toolbox with information material, a microsite as well as training material – will round off the range of advisory support offered by Zumtobel to its customers around the topic of sustainable building certification.



### 3 | Applied research: valuable knowledge through cooperation

Apart from its independent research and development activities, Zumtobel gains valuable basic knowledge and new insights in various application areas through scientific cooperation with various research institutions. Most projects last for several years, but this is time reasonably invested, since profound application knowledge is the basis of the user-oriented design process.

Together with its partners, Zumtobel focusses on carrying out investigations of the effect of light on human beings, in the course of which, for instance, parameters such as user acceptance and well-being are explored. In 2012, Zumtobel participated in a project sponsored by the Austrian National Bank together with the Human Research Institute in Weiz, Austria, among many other projects. In the course of investigating heart rate variabilities during office work, the effect of dynamic lighting on long-term sleeping patterns at night was explored. This is a promising approach to understanding and recording the effect of proper lighting on people's health.



### 4 | A decade with Lighting Solution Consultants: enthusiasm is infectious

For ten years now, employees have been trained to become Zumtobel Lighting Solution Consultants (LSC). The three-year modular training course conveys in-depth product and application know-how, offering opportunities to exchange experiences and establish important contacts. Meanwhile, 240 staff members are proud to call themselves "Zumtobel Lighting Solution Consultants". 207 employees are currently being trained.

Based on a combination of theoretical input and practical work, participants actually "learn from each other" – thus implementing one of our corporate values. 25 module managers and more than 60 Zumtobel experts act as coaches, passing on their knowledge and their enthusiasm for light, and creating an ideal balance between knowledge transfer and exchange of experiences by working on specific examples. With their experience gained in various projects, the participants also contribute to the international exchange of knowledge. Just as products, trends and technologies are changing at ever-increasing speed, training also undergoes constant further development. After a webinar campaign – a big success with 350 participants – the range of online training offered is going to be extended further as of the coming business year. The "Electronic Media" module is the first LSC e-module that can be completed online, flexibly, as required, at any time. Moreover, the "Lighting & Sustainability" LSC module will increasingly dedicate itself to the topic of environmental certification of buildings, thus taking account of the increasing relevance of building certification.

THORN

*Product  
stewardship  
and customer  
dialogue*



**50%**  
**less energy**

Hjørring Library, Denmark, ▶ page 13

## Projects

### 40% more light using 50% less energy

The Hjørring Library, Denmark, was previously fitted with 250 Chalice 190. The launch of Chalice 190 LED in 2012 meant the first 'true' replacement was available for conventional recessed downlights with compact fluorescent lamps. Fitted with maintenance-free passive cooling, the LED module in Chalice 190 LED can reduce energy consumption by as much as 70%. The product's identical dimensions, ceiling cut-out and accessories presented an excellent business case for refurbishing the lighting.

Jesper Madsen from lighting installers Hjørring El-Teknik says: "As a minimum, the lighting level had to be maintained, but in fact it has increased."

### LED street lights cut energy consumption by 80%

A recent test refurbishment in Les Andelys, France, involved replacing five ageing street lanterns by five 19th-century style EP 145 LED lanterns, with the aim of achieving better lighting quality along with energy savings.

The objectives of the project were successfully achieved, with the average lighting level increased from 4.3 to 11.2 lux. Energy consumption has also been reduced from 140W to just 28W with Bi power dimming. The long service life of 70,000 hours virtually eliminates the need for routine lamp replacement.

Les Andelys municipal representatives commented that the "new LED lighting gives a nicer feeling of lighting intensity and an improved lighting ambience." The local partner adds: "With its traditional aesthetics, EP 145 LED perfectly complements this historic street. The lighting quality is better, too, thanks to the colour rendering index increased from just 50 to 70. It's also great to know that no maintenance will be needed for a long time."



Thorn Energy Partnership training helps achieve 25% energy savings at Westex Carpets.

### 25% energy savings at Westex factory

British electrical engineering company Fully Wired joined the Thorn Energy Partnership (TEP) in January 2013. As a direct result, the company secured a new contract and successfully implemented an energy-efficient lighting system at Westex Carpets.

James Colam-Ainsworth, Co-Director at Fully Wired, explains: "We joined the Thorn Energy Partnership because we are committed to helping our customers achieve energy and cost savings, and wanted to ensure our knowledge is at the very forefront of developments in these areas. The move paid off because the credibility and additional knowledge we acquired as a TEP partner helped us win the contract to refurbish the high-bay lighting at the Westex Carpets factory.

"My experience with TEP so far has been very useful as we have gained access to training, tools and resources. The ecoCALC and energyCalc software in particular have improved my knowledge of energy efficiency."

Simon Walker, Director at Westex Carpets: "The lighting installation at Westex Carpets has improved the lighting levels throughout the site and in turn saved the company money while reducing CO<sub>2</sub> emissions. Fully Wired and the TEP worked together well to ensure the project was completed on time and budget."



GTLED reduced energy consumption by 40% in Tinnsjø tunnels.

► [GTLED, page 15](#)

## Energy consumption reduced by 40% in Tinnsjø tunnels

Two tunnels in Tinnsjø, southern Norway, have been refurbished with Thorn's GTLED luminaires, reducing energy consumption by 40% compared to conventional 58 W fluorescent lamps. In 1992, the tunnels were fitted with the well-known Gotthard luminaire combined with fluorescent lamps. However, upon the arrival of more efficient technology, they became Thorn's first tunnel project in Norway to be completely refurbished and upgraded with LED.

In cooperation with the local electrical contractor, LED luminaires with a system power of 75 W were chosen for the general lighting. In the entrance and transition zones, conventional luminaires fitted with high-pressure sodium lamps and counterbeam optics have been used. Thorn designed the application with a combination of 400 W, 150 W and 70 W high-pressure sodium lamps to meet the Norwegian Road Authority's regulations. This ensures a smooth transition from daylight into the interior zone of the tunnel. As day turns to night, the lights are dimmed in steps so that the high-pressure sodium lamps turn off in groups and the LED luminaires are then dimmed down to 50%. Tunnel Project Manager Hans Øien says: "We could see from the calculations that we had a great solution, but the result really speaks for itself. Achieving this kind of uniformity with such low glare is simply outstanding."

## 89% less energy consumed at Centre Retail Park

With the existing car park lighting scheme comprising 45 column-mounted Sonpak 400 W floodlights, the site had a dull orange glow. Despite only 60% of the lights working, they consumed 82,224 kWh annually, with frequent lamp failures adding to high operating costs. In conjunction with the customer and Stroma, a leading institution in meeting energy reduction targets, an audit was undertaken to determine a suitable replacement. As well as reducing energy consumption and improving lamp lifetime, a crisper light output was required to create an enhanced shopping experience with a greater sense of security.

Thorn Energy Solutions specified the Indra 98 W road lighting luminaire with Bi power dimming to reduce energy consumption by 50% during nighttime hours. Indra offered the highest lumen output and also met the payback requirement of less than four years. This was one of the customer's requirements. Indra reduces maintenance costs to practically zero while still achieving the requirement of 20 lux for car parks.



The Centre Retail Park in Oldham has more than 1,100 parking spaces.

# Products



## LED bulkhead range

- This year Thorn has launched LED versions of many of its popular bulkheads.
- With more control options and the best-in-class LEDs, they offer up to 45% energy savings compared to traditional wall/ceiling luminaires.



## Hipak Pro LED

- Robust, low-maintenance, energy-saving industrial high-bay LED luminaire.
- Ideal alternative to 250 W/400 W solutions – up to 45% more energy-efficient.
- Special LED optics for precise light control for racking and open areas.
- Integral PIR sensor and DALI dimmable to maximise energy savings.



## GTLED

- Advanced LED tunnel luminaire, designed to deliver energy savings and outstanding lighting comfort.
- Light control by lenses and reflectors provides tunnel-specific light distribution with high road luminance levels of  $> 2 \text{ cd/m}^2$  and low energy consumption.
- Advanced LED design for low glare and user comfort.
- 78 Llm/W (luminaire lumens per watt).



## Isaro

- Precision lighting for minor and major roads (LED and HID).
- The straightforward design offers an excellent refurbishment solution and reduces daytime visual impact.
- Durable and recyclable full aluminium construction, protected to IP66.
- The 84 W Isaro LED can replace a 250 W mercury lantern (e.g. Thorn Pilot) with the same performance in the existing installation, but with up to 80% energy savings and without any upward light (ULOR), owing to adjustable tilting.



## Suncyl

- Stylish columns combining solar and wind energy for sustainable stand-alone street lighting installations.
- A wind turbine guarantees power under all weather conditions up to 50 W/h.
- Made from 100% recyclable material and completely CO<sub>2</sub>-neutral, the sleek, architect-designed column is as environmentally friendly as it is attractive to the eye.



## Initiatives

### 1 | Smart Building: saving energy through intelligent lighting

Thorn has produced a new interactive online tool called the Smart Building Experience that lets customers find intelligent lighting solutions quickly and easily. Since lighting accounts for the major part of the entire power consumption of a building, Smart Building focuses on innovative LED luminaires and controls. These not only reduce power consumption and CO<sub>2</sub> emissions at peak times, but also deliver improved lighting performance, increased flexibility and comfort.

Since lighting and energy efficiency should not be considered separately from each other, Thorn's recommended product suggestions for the common spaces encountered within a smart building are based on '15 ways to save energy', from lamp efficacy to visible smart metering. Features also include the ability to calculate life cycle costs, payback periods and ROI figures (ecoCALC), plus access to information on additional sustainability-focussed initiatives. In line with the broad range of interior and exterior products offered by Thorn, the "Smart Building" concept has naturally been extended to become the Smart City.

► [www.thornlighting.com/smart\\_city](http://www.thornlighting.com/smart_city)

### 2 | Joining forces for greater energy efficiency: Thorn Energy Partnership

Presented for the first time at Light+Building 2012, the Thorn Energy Partnership programme (TEP) continues to develop favourably. The goal of the programme is to create a partnership between Thorn and lighting professionals to promote energy-efficient lighting without compromising on performance or comfort.

After the official launch in September 2012 and an introduction phase, initial successes became visible in the form of the first projects in spring 2013: by means of seminars addressing the key topics of energy-efficient lighting, Thorn's 15 ways to save energy and calculation tools. As well as the knowledge transfer networks, substantial energy savings have already been realised for the partners. Initial savings in the first year have seen a reduction of 80,000 kg CO<sub>2</sub> emissions.

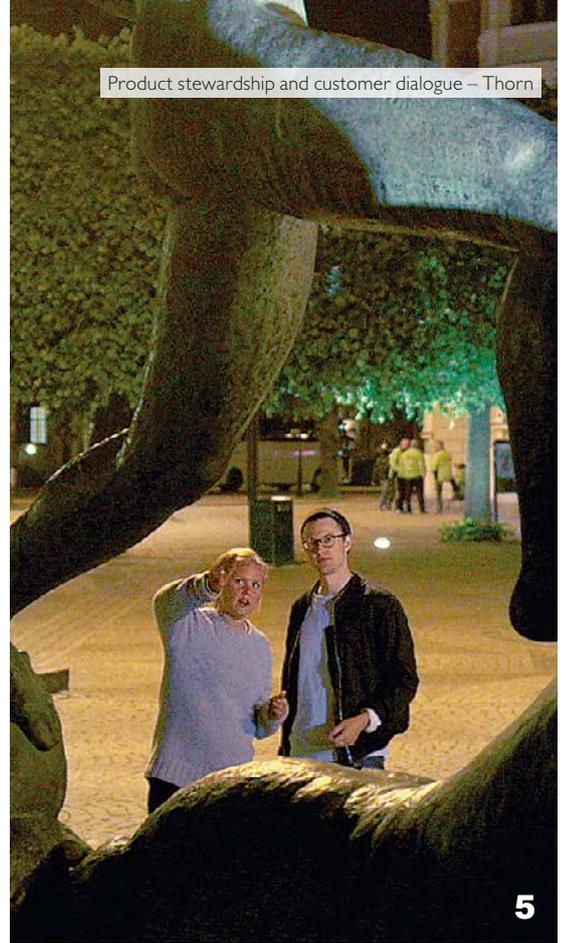
Today, more than 250 partners have joined the partnership across Europe and North Africa. In France, the first customer webinar on "Energy Saving Potential" was held in March 2013.



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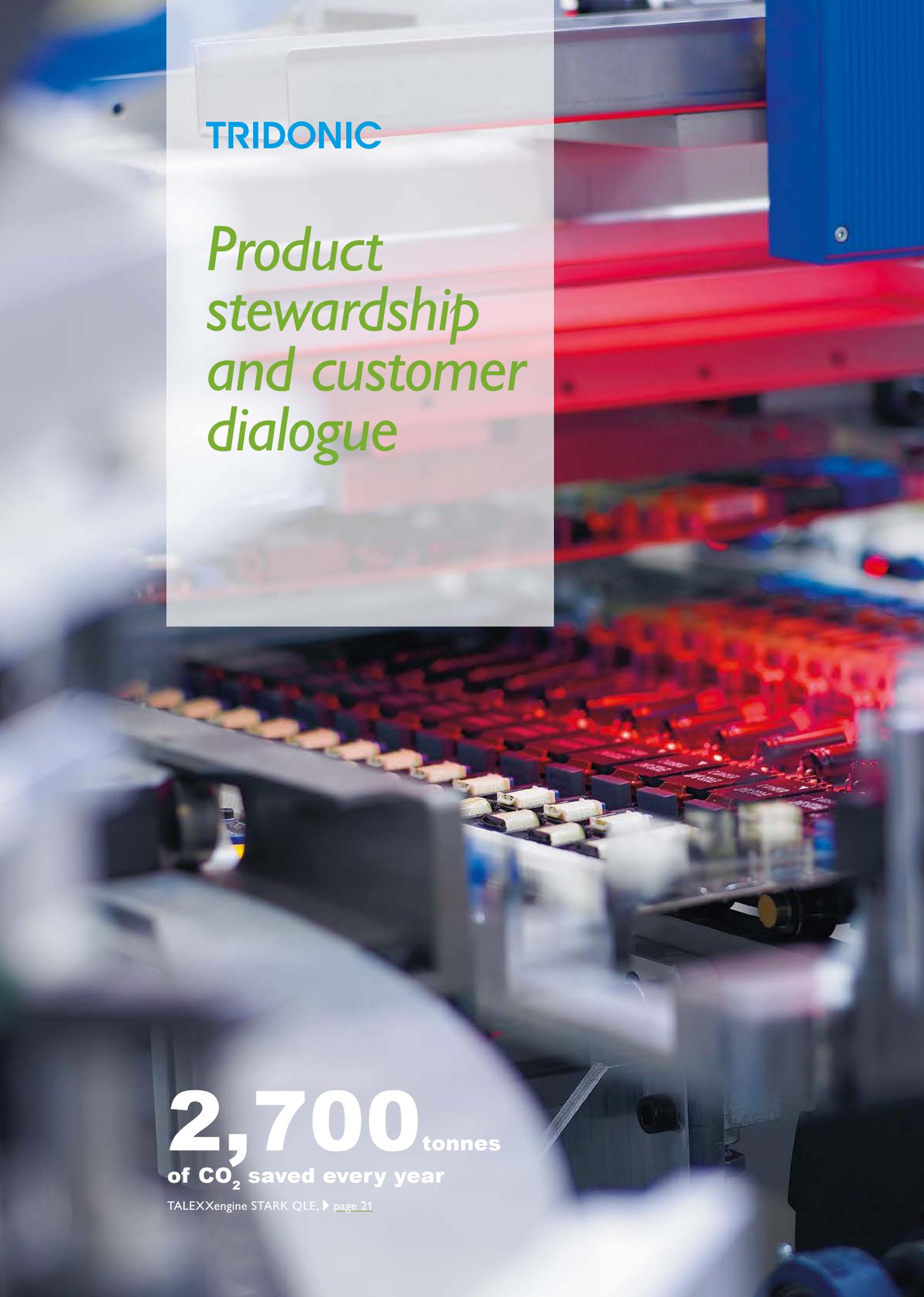
### 3–5 | “City of Light”: a city as an open-air showroom

In a trilateral cooperation between the School of Engineering at Jönköping University, the town of Landskrona and the local Thorn plant, five lighting design students were given the unique opportunity to implement large-scale lighting projects. That’s how Landskrona became the “City of Light”.

Their task was to illuminate five project areas in the Swedish town. Focussing on the aspects of functionality, safety, security and energy efficiency, in addition to the five project areas the students started to design a permanent outdoor showroom for Thorn as a lighting solution for all citizens in March 2012. Two of these projects were ultimately selected and implemented: part of the Art park – an urban sculpture garden near the castle of Landskrona (Citadellet) – was illuminated, just like the beautiful streets in the eastern part of the city, where the old lighting system was replaced by contemporary solutions developed by Thorn. The real-life outdoor showroom was completed and equipped with lighting controls at the end of 2012. In the process, Thorn showcased its extensive range of energy-efficient LED luminaires and lighting controls.

Continuing this sustainable partnership, eight new students will dedicate themselves to interior lighting in 2013. The implementation of various LED-based lighting solutions for classrooms and corridors at a local high school as well as in a retirement home will start in July. All these applications also include lighting controls. The best proposals will not only be implemented on site, but will also be used as reference projects for future lighting installations at other schools and retirement homes.

Moreover, it is planned to continue the cooperation and to even extend it to other universities within the Nordic Market, in order to position Thorn lighting solutions in the market sustainably.



TRIDONIC

*Product  
stewardship  
and customer  
dialogue*

**2,700** tonnes  
of CO<sub>2</sub> saved every year

TALEXEngine STARK QLE, ▶ [page 21](#)

## Projects



This is just one of the schools covered by the Abu Dhabi Future School programme.



winDIM@net by Tridonic decisively contributes to the sustainability of the Sheikh Zayed Desert Learning Centre.

### Sustainable lighting for sustainable schools

The Abu Dhabi Future School programme was initiated by the educational council of Abu Dhabi. Sustainability is a decisive criterion in all schools: the designs are evaluated according to a certification system, similar to the LEED system, developed by the urban planning council in Abu Dhabi. All schools are meant to achieve at least three 'pearls', corresponding to the LEED Silver certificate.

Therefore, efficient lighting management is required. The light is only meant to be switched on when and where it is needed. For this purpose, the luminaires are connected to light sensors, presence detectors and timers through the DALI network via winDIM@net. The light sensors allow for the use of daylight and provide for adequate dimming in line with the amount of natural light available. At the same time, it is ensured that the prescribed illuminance levels are available. Presence detectors are also installed throughout the school buildings to ensure that lighting is only switched on when people are actually present. In circulation areas and other common areas time-based control will ensure that the lighting system is used during predefined periods only.

### Building design for LEED Platinum

Sustainability was a major criterion in the design of the Sheikh Zayed Desert Learning Centre of the Al Ain Wildlife Park & Resort in the United Arab Emirates (UAE), with special emphasis being placed on minimising energy consumption and CO<sub>2</sub> emissions.

winDIM@net by Tridonic allows for the control of all lighting aspects as well as their adjustment to the activities taking place in the building, for each lumen to be used to full effect. In those parts of the building where there are high levels of natural daylight, light sensors are connected to the lighting system. The winDIM@net system retrieves the sensor data and makes it possible to exploit the available daylight. In this way, the prescribed illuminance levels are achieved at all times with minimum artificial lighting. The winDIM@net system enables lighting scenes to be created in selected areas of the building, creating a special atmosphere and enhancing the effect of graphs and charts to optimum effect. Thanks to easy handling, staff members can also preset scenes in the system and use the winDIM@net system to reprogram them at any time, as required.



The extremely complex system for controlling the various luminaires was built using Tridonic products.

## Lighting control system for cultural centre

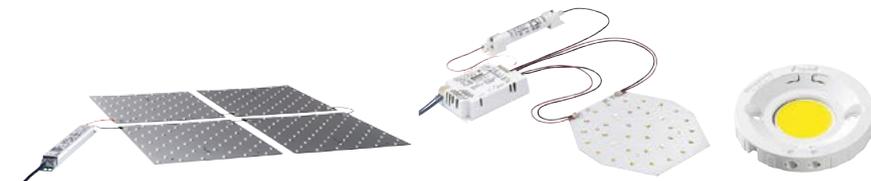
In the new cultural centre including a library in downtown Vällentuna near Stockholm, a wide range of light sources is used to create a lively and inspiring environment. The circular three-storey building is located in a park in the city centre. In the interior of the building, great store was set by optical lighting effects and their impact on the entire atmosphere. The extremely complex control of the different luminaires is effected by means of Tridonic products.

Lighting control is provided by a DALI network where luminaires are divided into groups, in order to minimise the total number of DALI addresses within the system. This arrangement facilitates maintenance whenever a ballast needs to be replaced. All DALI circuits are integrated into an IP-based network and can be monitored easily. It provides data on the energy consumption of the lamps as well as error feedback.

Overall, 800 Tridonic products are employed in the cultural centre, forming a dynamic and versatile lighting system that is able to respond to the variety of activities taking place in the building and to enhance them. The lighting management helps minimise energy consumption and makes it easier for the staff to maintain, monitor and control the installation.



A total of more than 800 Tridonic products are used in the cultural centre.



**Focus: LED products for general lighting**

- Energy savings of up to 60% as compared to conventional technology: taking TALEXX-engine STARK QLE as an example, the total number of QLE units sold in the year under report provides for energy savings of 6 GWh and a reduction of 2,700 tonnes of CO<sub>2</sub> emissions per year as compared to conventional technology.
- As emergency lighting versions, they ensure the safety of people in buildings – efficiently and reliably.



**TALEXXmodule STARK CLE CLASSIC EM**

- LED system solution consisting of an LED module, a control unit with built-in emergency lighting function and a SWITCH sensor.
- Module efficiency up to 136 lm/W.
- High colour rendering Ra > 80.
- Colour temperatures 3,000 K and 4,000 K.
- Long service life: 50,000 hours
- Adequate replacement of TC-DD fluorescent lamps.
- Integrated separate emergency lighting LEDs.
- Self-cooling (no additional heat sink required).



**TALEXXengine STARK QLE G2**

- Newly introduced generation of the square LED module for general lighting; efficiency increased by 20%.
- Module efficiency up to 136 lm/W.
- High colour rendering Ra > 80.
- Colour temperatures 3,000 K and 4,000 K.
- Long service life: 50,000 hours.
- Adequate replacement of T5, T8 and TCL fluorescent lamps.
- Integrated separate emergency lighting LEDs.

**Platform dimmable PCA ballasts and sensors**

- Automatic adjustment of dimming level to freely available daylight.
- For instance, direct integration of daylight sensors and presence detectors with digital SMART interface.
- Directly responds to visitor frequency and ambient light, automatic lighting control for corridors, storerooms or car parks.
- Low power consumption in standby mode.
- SMART plugs offer pre-programmed solutions for simple and time-saving configuration of lighting installations.
- Easy insertion of plugs allows for quick energy savings.
- Presence detectors, daylight or remote control sensors can easily be connected directly to the ballast.

# Products

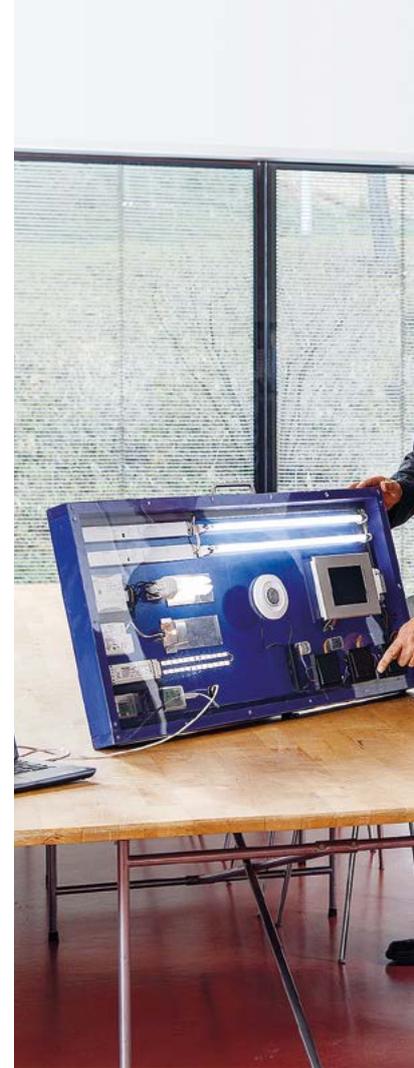




## Initiatives

### 1 | Light & Energy Summit in Birmingham

Tridonic organised a customer event devoted to the topic of Light & Energy in Birmingham/United Kingdom in autumn 2012. The event included joint discussions with two lighting industry experts. Summit topics and central questions focussed on opportunities for more energy-efficient lighting designs for applications such as offices and education or presentation and retail. In particular, the experts explained how solutions that use LED technology and using lighting control systems make sustainable lighting systems possible.



### Promoting intelligent lighting

Schneider Electric and Tridonic have been overcoming the technical challenges posed by intelligent lighting through their partnership-based cooperation since early summer 2012. Twenty Tridonic products have already been successfully tested to make sure that they are compatible with Schneider Electric control gear. Customers benefit from this because they are able to procure lighting systems with perfectly matched components, including services and plant safety, from a single source.

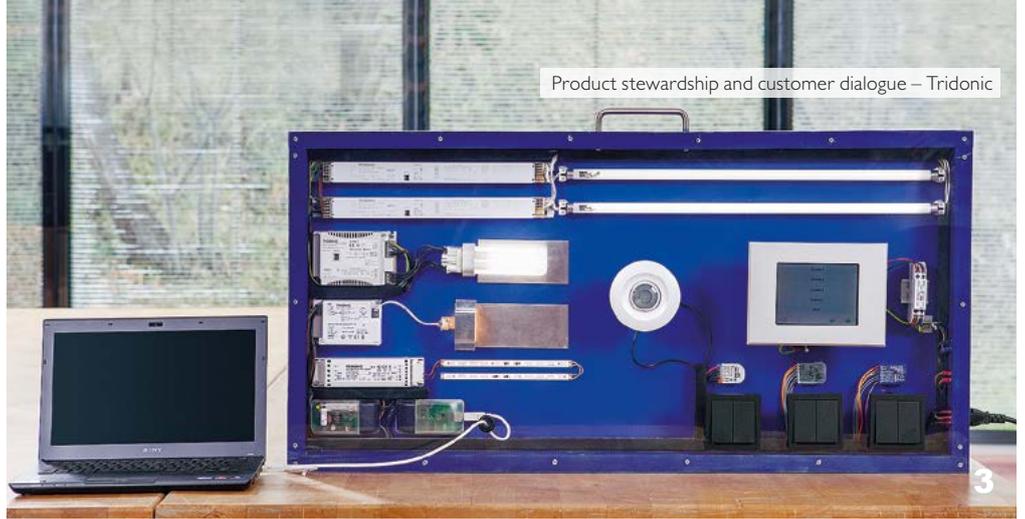
Two projects have been completed so far in different market sectors: 12,000 lighting points, a Schneider Electric lighting control system and Tridonic control gear were installed in Terminal 2B at Heathrow Airport; 5,000 lighting points (Whitecroft) and mostly Tridonic DALI ECG and EM PRO DALI converters in emergency luminaires were installed at the South Glasgow Hospital.

### 2–3 | Investing in the future: Bartenbach

Students are learning all about lighting design as an interdisciplinary profession at the Bartenbach Lighting Academy in Aldrans, near Innsbruck. Lighting Academy graduates are sought after on the market as skilled professionals. In order to be able to keep the training conditions as close to reality as possible, models – mostly for specific projects – are used for testing lighting designs. Tridonic has supplied the Lighting Academy with a DALI demo board complete with various components such as ballasts, control modules and sensors, control units and dimmers. This demo board is used in seminars to explain to the students how components interact with each other and to point out the possibilities that a modern lighting management system opens up. Apart from the benefits of a sophisticated lighting system, failures and errors can also be simulated with this demo board. Beside standard functions, the boards make it possible to simulate what happens in the event of a power failure, for instance. Students will reap the benefits of their practically-oriented studies in their later professional career.



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## 4–5 | Path of Light – a path into the Tridonic world

Tridonic customers have been experiencing innovative, energy-efficient Tridonic products in use since March 2013 as part of the six-step “Path of Light”.

A tour of the Path of Light in Dornbirn leads visitors to customer centres I and II where the Tridonic portfolio is exhibited on demo walls. The path continues in a lift equipped with LEDs. This is followed by offices in which a free-standing luminaire, a light line and pendant luminaires illuminate other LED products and their functions can be demonstrated out using an interactive presenter. Finally, the path leads to the underground car park where compact LED lighting modules, lighting control systems and dimmable ballasts are seen in operation.

Primarily LED and dimmable products as well as lighting controls are used along the Path of Light. Using the products shown, more than 10,000 kWh can be saved as compared to conventional solutions, equivalent to a reduction in greenhouse gases of over 4.3 tonnes annually.

## eAPP online tool

The new electronic handbook contains descriptions of lighting control functions for more than twenty application areas and offers employees the opportunity to discuss specific requirements with customers while at the same time fostering system-level skills.

Exemplary technical requirements and associated specifications are described at three different levels of functionality (basic, medium, high) and potential energy savings, user convenience, integrability and many other aspects are dealt with.

“More information will be plugged into this tool in future in order, for example, to allow comparisons of the life-cycle costs of a specific application in terms of investment, maintenance and energy consumption,” explains Karl-Heinz Fenkart, Tridonic’s Global Product Management Director.

# *Production and supply chain*

Papier/Karton

## €1 million

Environmental Officer and Safety Expert Wolfgang Natter is responsible for material flow management, among other things, at the luminaire factory in Dornbirn. His main goal is to boost resource and material efficiency and to create sustainable cycles. Preliminary analyses show that potential savings of around €1 million can be made at the Zumtobel plant.

## Tracing energy consumption

*The introduction of ISO 50001 has been stipulated in the top sustainability targets of all three brands of the Zumtobel Group. We talked to Markus Hollenstein, the responsible person at Tridonic, about this.*

*In the year under report, Tridonic has set the course for implementing the ISO 50001 energy management system. Why?*

*MH:* Basically, we want to use all resources efficiently and carefully. An energy management system (EMS) is going to help us monitor, control and optimise our energy performance and increase our energy efficiency accordingly. For some time already, the topic has also become a political focus; in particular the issue of the EU directive regarding energy efficiency at the end of 2012 has encouraged us in our efforts.



Markus Hollenstein, Director Business Excellence Tridonic

*All Tridonic electronics plants have already been certified under the ISO 14001 environmental management standard. What are the advantages of ISO 50001?*

*MH:* Obviously, the energy aspect was also observed within the scope of ISO 14001, but under this standard it is only a partial aspect of the entire environmental balance. With the EMS, the energy performance in the technical environment of the company is of central importance. All types of energy utilisation are thus analysed, evaluated and then optimised. Accordingly, ISO 50001 complements environmental management in a sound, reasonable manner, and we hope to obtain successes similar to those we have achieved through ISO 14001.

*Where does Tridonic stand with respect to that project?*

*Are there any results yet?*

*MH:* We are well within schedule. After the official kick-off in autumn 2012 and the initial energy assessment, the mandatory pre-audit will now follow in early summer and then the certification audit at the headquarters in Dornbirn. Subsequently, it will be rolled out onto the other electronics plants.

For the initial assessment, we had to ask a number of questions: Where will energy be consumed? When will it be consumed? Which of the processes are the most relevant? Only after the processes have been

precisely analysed can they be evaluated, and savings potentials be identified. We can also determine whether, and if so, in which areas, energy is currently not used in an optimal way at Tridonic, and then take adequate measures. In doing this, we are assisted by the increased transparency of the energy data and the greater amount of detailed information in particular. And we have already achieved initial successes: for instance, we have found out that a premature exchange of filters in a plant may reduce energy consumption. Or that our heat recovery is capable of development, since at

present part of the energy literally "deflagrates". Now, we can put an end to that.

*So, large investments are not always required?*

*MH:* No, definitely not. Even small measures or modifications of conduct have an effect. Moreover, energy is one of the factors that can be influenced by individual employees, for instance by turning off the light if they leave a room. Moreover, with the EMS, each improvement also impacts on our costs, since energy is part of the basic costs.

For Tridonic, the introduction of ISO 50001 will bring both ecological and economic advantages in the medium to long term.

*ISO 50001 is the internationally recognised standard for energy management systems. An energy management system is essentially aimed at increasing energy efficiency and reducing energy costs, energy consumption and CO<sub>2</sub> emissions. ISO 50001 focusses on the technical landscape of business enterprises.*

*The introduction of ISO 50001 in business enterprises is voluntary and basically not subject to mandatory certification. However, by submitting to certification, business enterprises demonstrate that they control the processes relating to their energy consumption deliberately and in a targeted manner.*

*The standard is closely associated with the ISO 14001 environmental management standard; accordingly, integration into an existing management system is possible.*



Thorn luminaire plant after refurbishment: with ESD flooring and a renovated roof that is fit for the future.

## “White factory” ready to enter the LED age

*Over the past three years, the luminaire factory in Les Andelys, France, has developed into a modern production facility. The factory has become more environment-friendly, more efficient and has managed to make more sparing use of resources. In a pre-post comparison, the Thorn location is barely recognisable.*

Those who have not visited the outdoor luminaire factory in Les Andelys for some time will not believe their eyes: the dark floor, the old roof and the yellow-grey walls have disappeared. Now, radiant white and smooth surfaces are striking features – the production facility looks modern and proper. “Usine blanche” – “white factory” – it is called by those who work there.

Back in 2010, things looked anything but “white”. There was a long list of refurbishment measures required. There were legal provisions and requirements that had to be met in the context of ISO 14001 certification. Without taking appropriate

measures, the factory would not have been capable of implementing the technological changes required to enter the LED age; first of all, the prerequisites for electronic manufacture had to be met. It was therefore necessary to make the location fit for the future.

EUR 3 million were invested to carry out extensive refurbishment measures over the past three years. Many of the measures taken are visible at first glance; the consequences they have, however, are much more far-reaching than the visitor may guess. The new roof, the repaired floor, the refurbished and insulated facade as well as the advanced lighting

The Les Andelys site showed signs of needing refurbishment in early 2010. A total of EUR 3 million was invested in renovation.



solution installed have increased the building's efficiency. On account of the new Zumtobel lighting solution alone, energy consumption was reduced by 30%.

Measures were also required in the paintshop area. The old hot oil heater in particular had to be replaced by a modern, environment-friendly heating system. The heating system for the painting process and the heating of the premises are now two independent systems, which means that the areas can be heated according to requirements.

In addition, the waste water treatment system was reconditioned, and the work processes were adjusted in parallel with the structural changes. All things considered, the measures taken at the paintshop result in considerable annual savings of EUR 48,000. Less gas is consumed, which significantly reduces environmental impact. In summer, the premises are cooled by natural air, thus improving working conditions for the staff.

After completion of various fire-protection measures and outdoor works, the go-ahead was finally given in December 2010 for ISO 14001 certification of the factory. Congratulations to the team in France on this major milestone!

Owing to the measures taken so far, the factory has been upgraded in many respects: Les Andelys is now all set for technological change. So far, LED products account for some 17% of the factory's output, the goal being to increase this share to 40 or 50%. There is huge energy saving potential for municipalities in the field of street lighting in particular, provided they switch over from conventional lighting to LED.

However, on its way to a sustainable luminaire factory, Les Andelys has not yet reached the finish: further upgrading of waste water management, fire-protection measures in the warehouse as well as roadworks will be implemented within the next two financial years.

## Building

- New roof;
- new facade plus insulation;
- repair of floor and laying of an ESD floor (electrostatic discharge required for the manufacture of sensitive LED components);
- installation of a new heating system;
- upgrading of the paintshop's waste water treatment system;
- new lighting system;
- painting of interior walls;
- renovation of product showroom

**30%**

Savings thanks to new lighting concept

Upgrading of waste water system and oil separator

## Outdoor area

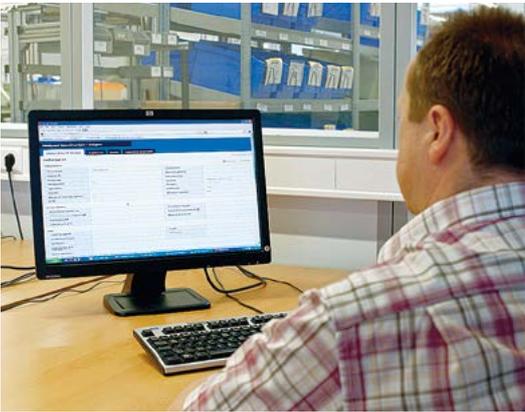
Rainwater embankments in the area of the parking lots and access roads

## Fire protection

Flue on the roof; fire doors and walls; wall-mounted fire hose reels; collecting tank for fire water

Total investment

**€3,000,000**



The “environmental cockpit” contains all the information needed to ensure environmentally friendly production. The environmental concept is based on standardised workflows.

## Five steps towards sustainable production

*In 2012, the environmental management team at Lemgo worked out a five-step procedure to implement an environmental concept – including health protection and industrial safety – in the luminaire plant.*

The process, which is oriented along the lines of the Six Sigma methodology, was initially organised as a pilot project. After successful introduction in the individual areas of production, the process will now be rolled out onto the entire plant.

“Our aim is to steadily reduce the effects of the production processes and of the products on the environment,” says Markus Schlingmann, head of Integrated Management System at Lemgo. By implementing this environmental concept, the requirements of the ISO 14001 standard are also being met.

The core of the project is an environmental information system, the so-called environmental cockpit. This software that has been adjusted to the requirements of the plant might also be designated as the brain of the environmental concept. The programme shows indicators relating to materials and operational parameters of the installations. The correct handling of hazardous substances can be derived from the programme, as can the responsibilities within the plant. There is documentation as to how specific equipment must be serviced and what kind of standardised procedure must be followed in this respect. “This will ensure, for instance, that the process of disposal of oil and lubricants takes place smoothly and in an environmentally friendly manner,” explains Markus Schlingmann.

The employees with access to the environmental cockpit are the same that maintain and update the system. “Since the information is accessible to all the parties involved, efficient and optimal workflows can be ensured even in case of personnel changes,” says Markus Schlingmann.

Another benefit is drawn by the environmental management team from the analysis that is made possible by the environmental concept (and its methods). Possible weak points, such as high levels of consumption, can be identified and improvements worked out in a targeted manner. The specifically developed way to implement the environmental concept has proven its worth at Lemgo and is now considered a pioneering pilot project for all Zumtobel plants.



Step 1 | Basic principles of the “5S method”: Sortiere aus (sort out), Sichtbar anordnen (arrange visibly), Sauber machen (clean up), Standardisieren (standardise), Standards einhalten (comply with standards)

Step 2 | Standardisation of production by means of “environmental cockpit” information system

Step 3 | Determine the handling of hazards as well as the correct procedure in emergencies, and provide for adequate training

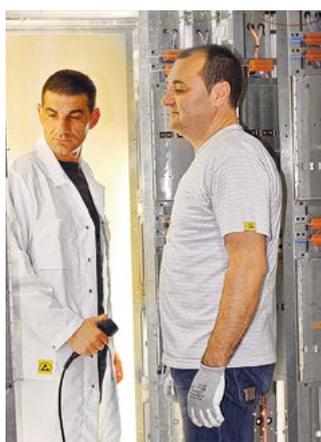
Step 4 | Communication from management level to machine operators

Step 5 | Continuous improvement process: development and continuous training of employees

# Highlights of the factories' environmental programmes

## Reduced power consumption during stress test on ballasts at Tridonic in Dornbirn

- A defined number of units are randomly sampled from every production batch and subjected to thermal testing and function testing for quality control purposes.
- Power consumption of the TSF test chambers has been reduced by 146,000 kWh/a, a figure equivalent to a reduction in CO<sub>2</sub> emissions of 23,652 kg a year, by optimising the loading of the TSF test chambers.
- This measure/improvement was proposed by two employees through the "Tridonic Clever" company suggestion scheme.



## Conservation of resources at Thorn in Wetherill Park/Australia

- Saving of packaging materials thanks to revised packaging design and concept for large packaging for locally manufactured products.
- Gas consumption reduced by 20% for painting process and chromate facility thanks to improved production planning.
- Improvements in recycling: 48% of scrap is now re-utilised thanks to recycling systems.

## SWEREA confirms: improved process at Thorn Landskrona reduces environmental pollution significantly

- The Swedish Research Institute says that the improved powder coating process sets an inspiring example.
- Energy consumption reduced by 30% thanks to reduced expenditure on heating.
- 60% less water consumed thanks to elimination of process sludge due to reduced reaction with aluminium and less cleaning effort.
- Significantly improved waste water quality: acidification reduced by 50%, eutrophication cut by 90%.
- Less chemical waste.
- Cost savings for energy and chemicals amount to roughly €26,000 a year, considerable drop in costs of repair and disposal.

## Important step towards protection of resources and climate protection: Zumtobel is investing €1.2 million in an energy concept and expanding the Zumtobel factory in Usingen

- Energy concept successfully established thanks to combined heat and power plant, switch to natural gas, need-based control of heating, upgraded heating system and much more besides.
- Annual energy savings of around 25%.
- CO<sub>2</sub> emissions reduced by 450 tonnes a year.
- The Green Building Monitor continuously shows employees the amounts of energy currently being consumed and generated.
- European Union Green Building certification has already been applied for.



## Efficiency improvements at Thorn in Spennymoor

- Replacement of old machinery by modern, energy-efficient equipment (four injection moulding machines replaced by two machines offering better performance).
- Optimisation of building processes (heating, ventilation, air conditioning) and lighting control system.
- Introduction of local control systems in order to disconnect plant when not in use.
- Use of thermal insulation for temperature-sensitive equipment.



# ROUND TABLE

*Global supply chains, cost pressures and fluctuating demand require efficient logistics, and sustainability is playing an increasingly important role in logistics. We asked Günter Waibel (Thorn/GW), Helmut Kuhlmann (Zumtobel/HK) and Bernd Fink (Tridonic/BF), Logistics Managers in the Zumtobel Group, how they are facing up to these challenges.*



**By road**  
Zumtobel: 83%  
Thorn: 90%  
Tridonic: 77%



**By sea**  
Zumtobel: 2%  
Thorn: 5%  
Tridonic: 18%



**By air**  
Zumtobel: 4%  
Thorn: 3%  
Tridonic: 5%



**By rail**  
Zumtobel: 11%  
Thorn: 2%  
Tridonic: \*

\* all local transportation to and from overseas ports

*Sustainability is an important issue. Does that also apply to logistics and transport?*

**HK:** Yes, there is growing awareness of the importance of sustainability in logistics as well. The issue of sustainability is omnipresent both within the logistics division and in discussions with our partners. When we are looking at rail shipments from China to Europe, for instance, we consider CO<sub>2</sub> efficiency as well as transit times and costs.

**HK:** In the long term we aim to carry on cutting the proportion of airfreight by optimising our planning and consolidating collective shipments. In this context, integral projects involving the entire Group's procurement, production and logistics are already under way. The objective is to cut inventories and throughput times, bundle shipment volumes by consolidation and improve the transport mix (air and sea). This will also have significant ecological benefits.

*What do you feel are the greatest challenges your division faces from a sustainability perspective?*

**GW:** Like almost every division in the Zumtobel Group, transport, too, is being affected by technological change, e.g. by the geographical shift in procurement markets. However, because we use logistics partners to provide all transport-related services, we are already extremely flexible and we can respond nimbly to changes. We are already able to adapt capacity flexibly in line with market needs or respond to changed environmental circumstances through organisational measures. One challenge is to manage this partner network and integrate it into our way of thinking with a view to ensuring sustainable development.

*What aspects of sustainability are taken into account when choosing a transport service provider?*

**BF:** Service providers are selected on the basis of criteria that safeguard our quality aspirations, ensure efficient logistics and take into account sustainability aspects. Although economic and deadline factors are usually prime considerations, the arrangement that is the most economically sensible is often also the best form of transport in ecological terms. Shipment by sea is less expensive than airfreight and also produces fewer emissions. Giving preference to service providers who are certified according to ISO 9001 and 14001 or Ökoprofit, for example, the exhaust emissions standard for vehicles, etc. also comes into play.

*What does "sustainable development" mean in this context?*

**GW:** It means working, for instance, with our service providers on new concepts intended to optimise transport and warehousing services. Warehousing activities in Scandinavia, for instance, were outsourced to a service provider in 2012/13, which gives us the ability to adapt our capacity at any time: this means economically sustainable further development of distribution services for our customers.

*Keyword "emissions": in 2012/13, the Zumtobel Group completed a project aimed at surveying CO<sub>2</sub> emissions. What is the reason behind this?*

**HK:** The CO<sub>2</sub> emissions hitherto determined in the Zumtobel Group consisted of "direct emissions" (consumption of oil and gas) and "indirect emissions" (consumption of district heating and electric power). The CO<sub>2</sub> emissions produced by the transport of products were not actually surveyed at that time. The project has now closed this gap.

**GW:** The project was carried out together with the

V-Research company. The CO<sub>2</sub> emissions produced by our shipping activities were surveyed in the first phase of the project. For the second project phase, we set ourselves the goal of reducing these emissions and continuously monitoring the result.

*For some time now, Tridonic in Vorarlberg has been working with the Austrian Economic Chambers, Rail Cargo Austria and the Logistics Network Association (Verein Netzwerk Logistik) in order to improve the attractiveness of rail transport to transport managers. How are things going?*

BF: We are discussing various approaches in our "Road to Rail" working group. One of our most important aims is, for example, to expand the rail freight terminal but this has unfortunately been affected by delays. Another approach is to consolidate the industry's freight by using block trains from

the region to European conurbations. Further progress has been achieved in this respect on the part of the loading/unloading sector and there is a realistic prospect of cooperation (aggregation of volumes). We are also discussing exciting concepts in the area of train loading and unloading for combined traffic. Because there is a raft of possible ways of making rail traffic more attractive and hence making transport more environmentally compatible, workshops will also be held in 2013.

The Zumtobel Group's logistics managers.  
From left to right: Günter Waibel (Thorn),  
Bernd Fink (Tridonic) and Helmut Kuhlmann (Zumtobel).



# *Working for the Zumtobel Group*



# “Let our people be the brightest light” – HR work in a time of change

*Technological change is confronting the company with critical challenges. We talked to Birgit Sonnichler, Director of Group-wide Human Resources Management, about these and other challenges.*

*How can Human Resources Management support technological change?*

BS: Preserving and further developing our know-how, upskilling and globalisation are just a few of the important key concepts in this context. We have to ask ourselves the following questions: how can we make sure that our company and its employees are fit enough to cope with change? What kind of skills do we need in order to stay successful? How can we encourage our employees' continuous professional development? Or, where can we get backing?



Birgit Sonnichler, SVP Corporate Human Resources

relevant needs, e.g. designing and conducting in-house workshops. It is also important to carry on fostering the development of our employees' technical and personal skills. We do this with on-line learning concepts or training courses that are brand-specific and methodical, in-house or external – the schemes available are diverse and can be used flexibly all over the world. We work in partnership with universities because we need the latest knowledge, e.g. software, semiconductor electronics and physics knowledge, and it also plays an important role in the recruitment of new employees.

Unfortunately, sometimes we are confronted with the limits of our capabilities. In the case of Tridonic, we had to reduce the workforce at sites that worked on old technology, e.g. magnetic ballasts. Requirements have also changed in the conventional control gear sector, and we were unfortunately obliged to let employees in Administration and Development go.

*How do you deal with this issue in a responsible manner?*

BS: For us it is important that, even in difficult situations, we continue to live by our corporate values in a credible manner. We assume responsibility by seeking to devise, together with employee representatives, solutions that support affected employees individually as effectively as possible. This may involve extra voluntary financial benefits or mentoring by an outside HR consultant who helps employees find new employment.

*How do you support current employees?*

BS: True to our motto “Let our people be the brightest light”, every employee must be able to develop his or her capabilities and potential in the context of achieving shared objectives. Because change can lead to employees feeling insecure, our senior staff members play a vital role because they can convey a sense of security. We support them, for example, through our holistic leadership development programme, by providing management tools such as the employee development meeting and through measures that are individually adapted to meet

*Have you also noticed changes in job applicants' preferences?*

BS: Yes, there is a trend towards individualism, i.e. tailor-made offerings and measures such as flexible working hours, the possibility of taking time off for training, travelling around the world etc. Another trend is that many employees like the idea of a change after a few years. The process of announcing vacant in-house positions is transparent and we encourage people to switch brands or regions regardless of whether or not this involves hierarchical promotions. We welcome short-term exchange programmes between different sites or international assignments that last several years.

*What role do corporate culture, sustainability and values play as far as job applicants are concerned?*

BS: More and more applicants want to make sure right at the outset whether our corporate values and the way that these are lived out in the company are compatible with their own values. The issue of sustainability is also becoming increasingly important: talented applicants sound us out in advance to establish how good we are in terms of sustainability, and how credible our efforts in this area are.

For me, sustainable HR work means the opportunity to help shape a corporate culture that fosters motivation and also helps us cope with times of crisis. It involves pointing colleagues in the direction of shared objectives, enabling them to fulfil their tasks, play to their strengths and deal with challenges that ultimately make them stronger.



## The personal touch

### 1 | Reconciling work and family life

Playing and romping around while the parents are doing their job: more than 20 children of our employees at the Dornbirn location are looking forward to this. The "Dornbirn companies for inter-company childcare" cooperation project will start in September 2013, facilitating the compatibility of job and family. The facility is organised by the "Vorarlberg childminders". Since the Zumtobel Group is a cooperation partner, our employees have a preferential right to have their children, aged 0.5 to 6 years, accepted by the childcare centre that is open all day long six days a week.

### 2–3 | Long night of apprenticeship

Some 200 young night owls flooded into the training workshop installed by the Zumtobel Group, showing a keen interest when the Long Night of Apprenticeship opened its doors again in January 2013. Those interested had an opportunity to obtain information on apprenticeships in the fields of electrical engineering, electronics, plastics

engineering, metal engineering and production engineering at the Dornbirn location. Apprentices and instructors were available to answer the questions of potential junior staff. "We set great store by the topic of social skills and the capability to act," says instructor Otto Bechter. This includes, for instance, the implementation of project work under the apprentices' own responsibility from the first year onwards. In Vorarlberg, the Long Night of Apprenticeship is offered by the Zumtobel Group exclusively and is very popular.

### 4 | Zumtobel Group regulars' table

The Zumtobel Group regulars' table was originally based on the idea of meeting each other and helping international employees to settle in. But the initiative was soon extended, since it is a useful platform of exchange among all employees. The interplant cooperation with two other companies established in the region, Alpla and Doppelmayer, makes the network grow. In the meantime, the programme of the "regulars' tables" has

come to include activities such as hikes or visits to other plants, for instance a guided tour of the Mohrenbrauerei (brewery) in Dornbirn.

### 5 | Exchange at trade fairs

In 2012/13, the Zumtobel Group participated in numerous job fairs in Austria, Germany, Sweden and England, in order to inform those interested about career opportunities within the organisation, but also to extend its network with universities. "Trade fair appearances are very important for obtaining more information about the needs, expectations and goals of the students by talking to them," says Nadine Grasl, HR Marketing. Some cooperation projects that have already been initiated successfully confirm our commitment. Two selected projects, "City of Light" and "Ecolar", are described on pages 17 and 46.



1



2



3



4



5

## Healthy and fit together

*Apple campaigns, back muscle training, joint sports activities – the range of offers is wide. The Zumtobel Group offers numerous health campaigns at various locations. For trim and healthy employees contribute to the success of a company. There are many examples...*

### 1–2 | Tridonic employees are “inTAct”

At Tridonic connection technology in Innsbruck, the “inTAct” health management scheme has been in place since 2008. Among other topics, it includes industrial medicine, industrial safety, but also offers such as a biomechanics test by a physiotherapist, low-priced massages on site, coordination of appointments for annual check-ups, a scheme for breaking nicotine addiction and many small sports groups that have come to organise themselves on their own in the meantime and work out together in their leisure time.

### Landskrona offers rewards to trim employees

The Landskrona site relies on the employees’

own initiative. Every employee who arrives at work on foot or by bike makes a corresponding note on a card every day. At the end of the month, gift vouchers are raffled off among the cards handed in at the HR office. In spring and in autumn 2012, a so-called Exercise Card was issued to all employees at the Landskrona site. Every employee engaging in sports at least 38 times between 1 January and 30 May and at least 36 times between 10 August and 18 December would make an entry in the Exercise Card and received a small gift.

### 3 | Thorn Nordic at DHL relay race

The participation in the DHL relay race in Fælledparken in Copenhagen has been a must for the Danish team for three years already. In 2011 and 2012 the Thorn colleagues from Sweden and Norway formed a team as well. The DHL relay race is the biggest relay race in the world; a total of approx. 130,000 runners participate each year. Each team consists of five runners, each of them running five kilometres.

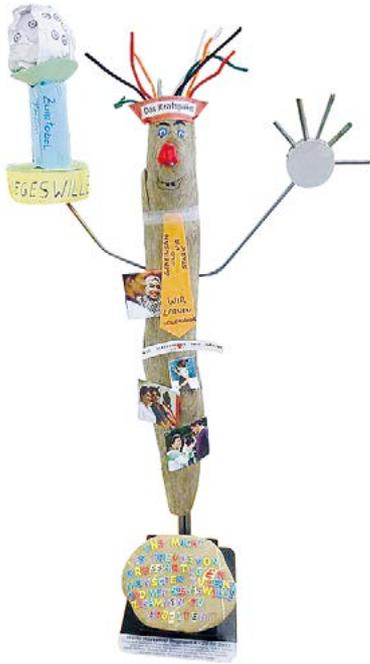
### 4 | Zumtobel Vienna organises super-decathlon

Every four years – whenever Olympic Games are held – Zumtobel employees also compete for scores in various disciplines in the Vienna sales office. In the course of a year, ten competitions are held. This year, too, “Wuzzeln” (Viennese for table football), go-carting, bowling, table tennis, running, archery, goofy golf, “Schnapsen” (Austrian card game), pool and darts were on the agenda. Almost 50 guys and one lady participated in the super-decathlon with its already long tradition in Vienna.

### 5 | Zumtobel Group ski race

The annual international ski race of the Zumtobel Group took place on 16 March in Schröcken/Warth. Overall, 119 skiers and snowboarders ventured down the race course and were cheered by some 240 guests. Bright weather, optimal slopes and a wonderful atmosphere among spectators and participants made this day unforgettable.

# Living the values together



Naturally, some creativity was also asked for in the value workshops for PASSION.

At the beginning, there was a long wish list: We want to live our values and make all employees and executives join in this effort. We want the values to become more tangible, we want them to be linked up with our corporate strategy, and we want them to show what really counts in our cooperation. Today, hardly two years later, many of those involved believe that the new definition of the values as well as the global roll-out were successful initial steps creating a basis for a strong corporate culture.

What is the secret? "Right from the start, we have relied on involving our employees. Our directors have actively participated in defining the values anew, accordingly ensuring a connection with our strategy. We interviewed several employees on the existing culture of values, thus creating a bridge between the values already implemented and the new values," reports Birgit Sonnichler.

During the global roll-out, the project team also relied on the commitment of our own staff. In Human Resources, a standardised workshop design was developed; the HR Business Partners trained executives throughout the world, with the latter subsequently carrying out value workshops with their teams on their own. A huge contribution was made by the value ambassadors: some 160 employees from the most varied technical fields, voluntarily participating in the workshops as facilitators.

The "Value Champions" competition has shown that at Zumtobel, the values are put into practice in an excellent manner today already – the distinction was awarded to a total of four teams in 2012.

The values are not meant to remain a one-hit wonder. For this reason, they have also been integrated into the staff development tools, such as the employee development interview. "For the purpose of this structured interview, we have translated the values into specific competences and modes of behaviour. The employee and the executive discuss behavioural patterns by way of example, thus developing



**Kevin Lander,** Director Zumtobel/Thorn for the Middle East and India, has headed five workshops with his staff as an **executive:**



**Mayuri Govil,** Application Design expert for Thorn in India, is **one of some 7,500 employees** that implement our values:

» The workshops offer an ideal platform to managers to convey important messages and to get their staff's commitment. Every time, I was surprised by the enthusiasm and the wish of each individual participant to make a contribution to the 2020 strategy. We are going to hold these meetings with our employees twice a year, in order to check on their commitment. I have also encouraged my managers to use this workshop platform at the level of the team. "

» I definitely experience the three values in my daily work. My passion for my work and the good and valuable cooperation within our team are responsible for the fact that I like to fulfil my tasks and that I enjoy going to work every day. "

# PASSION PERFORMANCE PARTNERSHIP

You will find the definition of our values on our website!

a common understanding of the implementation of the values," explains Michael Oberhauser. Here too, the goals are ambitious: by the end of 2013/14 the development interviews are to be implemented for all employees throughout the world.

And obviously, the development of our values is also going to be continued in 2013. What kind of progress have we made with respect to our intentions? Are there any new challenges? These questions will be dealt with by the teams in follow-up workshops. In spring, some creativity was required: in a competition, the employees were given an opportunity to contribute their suggestions for the visual design of the values; the best ideas will be implemented. In the second half of the year, the "Value Champion" distinction will be awarded again.

The values make people connect if they are lived and experienced together. Monika Wohlmuth summarises her experience over the past two years as follows: "It's fun to work with great people. I was lucky to experience this value in a quite unique way!"



**Iris Plantosar**  
from the Zumtobel Sales Team  
Vienna/CEE, **one of some 30 HR  
Business Partners**, has accompanied  
the international roll-out of the  
workshops and provided training  
to executives:

» Our workshops all had one thing in common: the readiness to think in a wider context and to jointly develop an even better mutual understanding and greater awareness of our values. The values that have already been implemented were again considered more consciously, with the exchange within the team being experienced as valuable, especially in the dialogue between people. Now we need to implement the jointly defined measures and ideas. "



**Eric Lam**,  
plant manager for Thorn  
in Guangzhou/China, has  
**closely linked** his workshop  
**to workaday life:**

» The responsibility to bring the values to life is shared by all employees. In the workshop, we have accordingly chosen as many different topics as possible to show how we would like the values to be implemented in workaday life. Examples are the Lean project and the Kaizen events. Learning together and from each other and continuously improving the plant are of primary importance. As we see it, the basis of successful implementation are the confidence in our employees, on the one hand, and also the good example provided by the executives. "

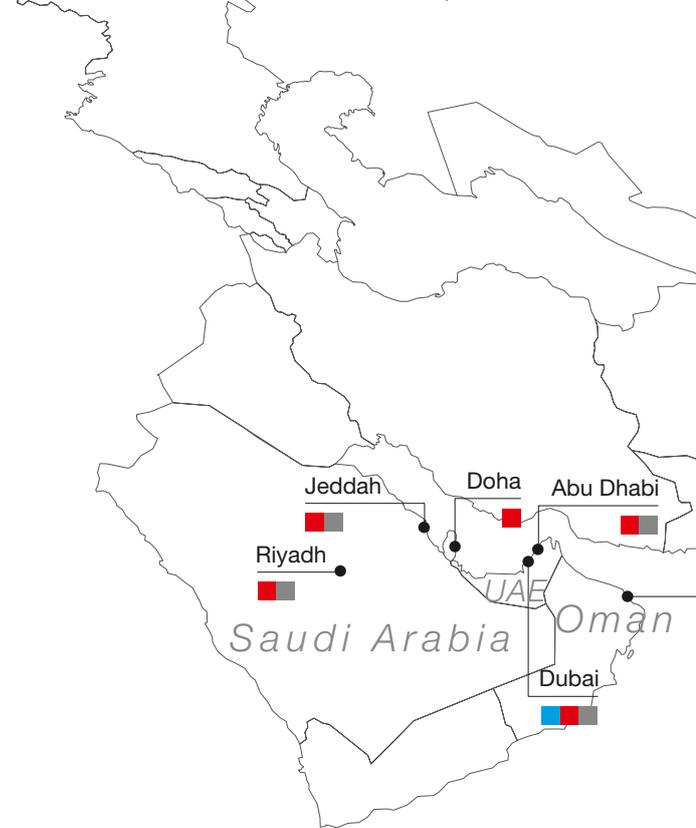


**Katharina Berdnik**,  
Project Manager International Sales at  
the Tridonic head office in Dornbirn,  
**one of some 150 value ambassadors**,  
has committed herself to firmly estab-  
lish the values within the company:

» Values determine the way we think and act. The better the communication within the company works, the sooner our values will actually be put into practice. For instance, innovation is not created through individual performance, but through mutual exchange and the utilisation of synergies. I am happy to be able to make a contribution as a value ambassador. "

# Work in Asia

*The Zumtobel Group's global growth strategy focuses in particular on the new markets in Asia and the Middle East. Over the next few years the company expects above-average growth in these markets, which should make the Group less dependent on European markets that are currently relatively stagnant.*



Market developments in Asia also mean that we must assume responsibility for employees in India, China, South-east Asia and the Middle East. The Group already employs approximately 1,100 employees in Asia and the Middle East in three company-owned plants and a large number of sales branches. Our corporate values of PASSION, PERFORMANCE and PARTNERSHIP underpin day-to-day work in these locations, too, for employees and employers alike.

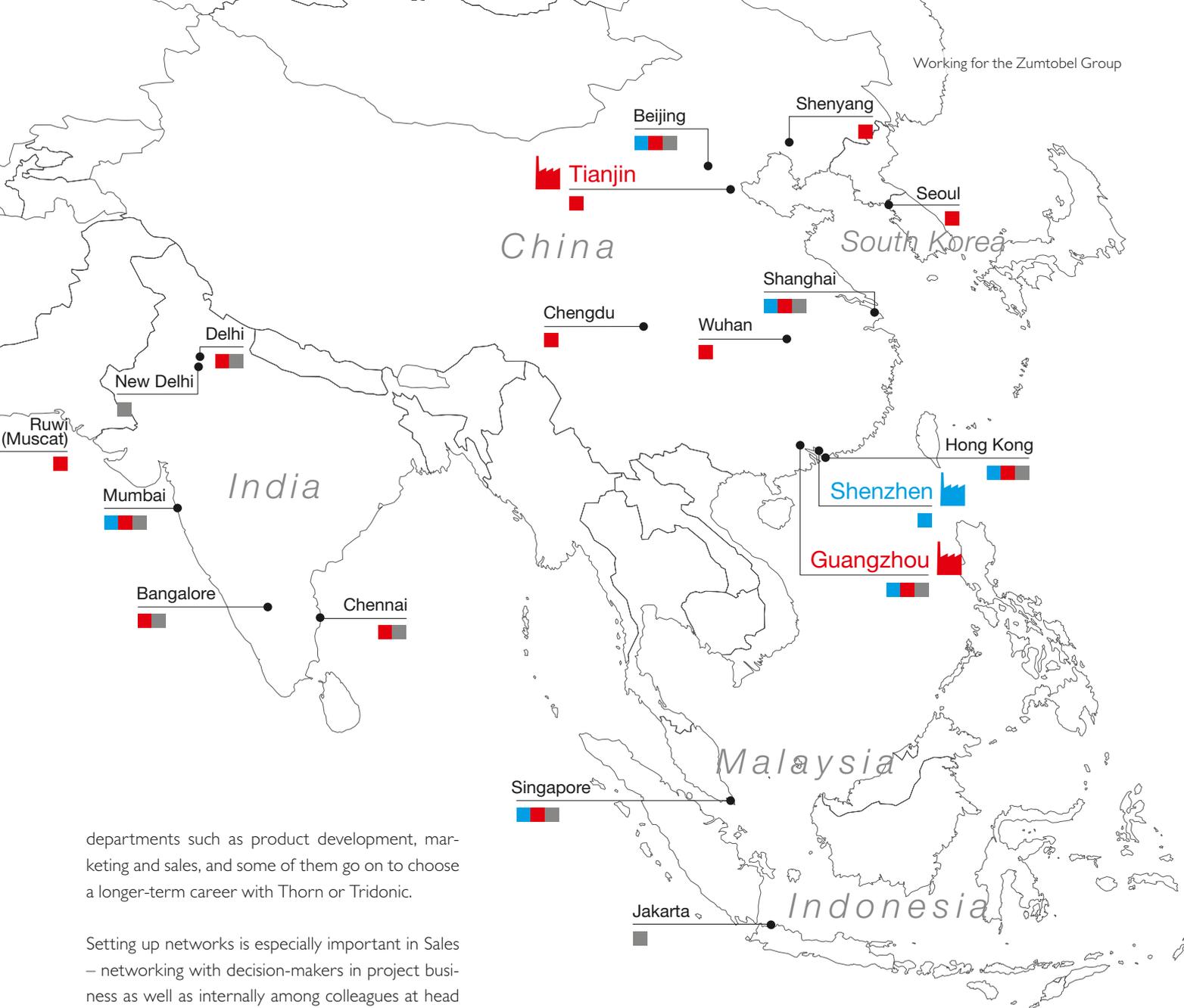
The company pledges itself to respect human rights and comply with the core labour standards of the International Labour Organization (ILO) without any exceptions. Great importance is attached to ensuring humane working conditions in all three plant locations in Guangzhou (indoor luminaires, approx. 285 production employees), Shenzhen (electronic components, approx. 391 employees) and Tianjin (outdoor luminaires, approx. 90 employees). Particular emphasis is placed on issues such as industrial safety, cleanliness in the workplace and employees gaining technical qualifications based on Lean Six Sigma methods designed to ensure that extremely exacting quality aspirations are met.

Migrant workers are predominantly employed in production. The company provides these workers with sleeping quarters, accommodation, changing

rooms and toilets. Wages are in line with, and sometimes far exceed, the minimum wage stipulated by the Chinese government, depending on individual employees' qualifications, efficiency and length of service.

High staff turnover rates are a major challenge in Chinese manufacturing facilities. It is therefore in the Zumtobel Group's interest to secure greater employee loyalty by providing additional voluntary fringe benefits. Such benefits vary depending on the location and range from air conditioning in production plants (Shenzhen only), free meals for night-shift workers, sports facilities and free bus transfers to the town centre through to various works parties and the payment of extra health and accident insurance premiums.

In the case of salaried staff, the objective is also to position the company as an attractive employer in order to facilitate the recruitment of technically well qualified employees and, above all, make sure that they remain loyal to the company. In Asia, cooperation with various universities such as those in Dalian, Tainyuan and Fudan is also an important tool in this respect. The company sometimes sponsors students within the scope of projects or diploma theses; internships and Campus Recruitment Days are also organised. Graduates have the opportunity to acquire their first professional experience in



departments such as product development, marketing and sales, and some of them go on to choose a longer-term career with Thorn or Tridonic.

Setting up networks is especially important in Sales – networking with decision-makers in project business as well as internally among colleagues at head office. In 2012 the Zumtobel brand launched a mentoring programme in order to forge closer links between the Austrian head office and expanding markets in the Far East. The aim is to make life easier for new recruits who are joining the company and to integrate them individually into the Zumtobel world. More than 40 voluntary mentors are on hand to give new employees advice and support for a period of at least six months. The mentor passes on experience, imparts special “Zumtobel know-how” and points new staff to the right contact persons.

In the final analysis, it is all about the Zumtobel, Thorn and Tridonic spirit and shared corporate values. These values apply in Asia as well as in Europe – they underpin the global sustainability and success of the Zumtobel Group.

<b>Production</b>	<b>Sales</b>
Tridonic: Shenzhen	Tridonic
Thorn: Guangzhou, Tianjin	Thorn
	Zumtobel



» The mindset in China changed a long time ago. Cheap labour is no longer the main priority. We need to take good care of our employees. All employees – regardless of whether they are production workers or office staff – want to develop their careers while striking a sound work-life balance. Our strategy is to help our employees gain further technical qualifications that suit their individual needs and our corporate strategy. This will enable us to exploit the huge opportunities that the Asian markets are opening up for the Zumtobel Group."

As far as **John Li**, HR Director for Thorn and Zumtobel in Asia, is concerned, the most important task is to open up individual career development prospects for employees.

## Impressions of Asia



Vocational training is held in high regard at Tridonic Shenzhen: participants in the 2012 Campus Recruitment Internship Training, and people who completed their Green Belt training.



External view of the new plant in Tianjin.



Electronics manufacturing in Shenzhen: development, quality control and assembly.



As a Zumtobel China sales employee, **Bruce Fang** benefited from the mentoring programme.

» I know of no other company that has set up such a helpful programme as this. Networking is indispensable, especially when doing project business. My mentor helped me with in-house networking. This enables me to work more efficiently and advise customers proficiently and quickly."



Impressions of the luminaire factory in Guangzhou.



Celebrations are an integral part of working life in China: shared birthday celebrations in Shenzhen; impressions of a staff party held on the occasion of the official opening of the new Thorn plant in Tianjin.



*Our  
social  
engagement*



## Zumtobel Group Award 2012

*This year, the Zumtobel Group Award was presented for the third time. This architectural award for the promotion of sustainability and humanity in the built environment was created by the Zumtobel Group and has since been curated by Aedes Architekturforum in Berlin.*



The award in the Built Environment category went to the US-based non-profit architectural practice MASS Design Group for its Butaro Hospital project. The award in this category carries a purse of EUR 80,000.

» We will use this prize money to finance our new initiative, the MASS Design Lab, that we will be launching next winter. The lab's objective is to finance research that is required in order to develop new strategies and test them in order to improve our buildings, our towns and our communities through better design."

*Michael Murphy and Alan Ricks, MASS Design Group*



The award in the Research & Initiative category went to the French architectural practice atelier d'architecture autogérée (AAA) for its integrated research project R-URBAN. The prize money of EUR 60,000 was divided up, with EUR 30,000 for the winning entry and EUR 7,500 going to help sustain progress in each of the four nominated research projects and initiatives.

» The Zumtobel Group Award enhances our credibility as an institution; this is very important for such an unusual organisation as ours, i.e. a non-profit organisation made up of activists. We will use the prize money to fund components of the project for which we were unable to find finance. These are, above all, knowledge transfer concepts, an aspect which is often underestimated in the context of conventional research contracts."

*Constantin Petcou and Doina Petrescu, atelier d'architecture autogérée (AAA)*



The 40-bed Butaro Hospital in Butaro, Rwanda.



A bottom-up framework for action for sustainable urban renewal in Colombes, Paris.

# INITIATIV

## Thorn Guangzhou supports children of migrant workers



In April 2013, the employees of the Thorn luminaire plant in Guangzhou (China) encouraged the children of the Yangcheng elementary school to participate in a "month of reading". The children were provided with opportunities to write down their thoughts about the books they had read or to express them in drawings. On the occasion of a festivity, the twenty best works of art were awarded a prize; there was a lot of appreciation for all. In the previous year, Thorn celebrated the Chinese "Children's Day" with the pupils, presenting them with writing utensils in addition to organising joint activities for the day. The Yangcheng school with its very modest premises was especially built for the children of migrant workers.

## Highlighting youth unemployment

The Zumtobel Group demonstrates its commitment to local and social topics through the integration project regarding unemployment of young people in Vorarlberg, which was initiated in spring 2013. What are the critical topics, and in what way can the Zumtobel Group as a corporation contribute to improving the situation; these are the questions that were analysed at a first meeting with representatives of social and integration organisations in Vorarlberg. It was evident that exchanging thoughts and ideas with the unemployed youths themselves must be in the foreground. At World Cafés specifically organised for this purpose by the Zumtobel Group, the young people worked on the most varied issues, developing their own ideas. These are taken up and are integrated into the further steps of the project. The goal is to join forces to make a difference.



## Photonics at Austrian schools

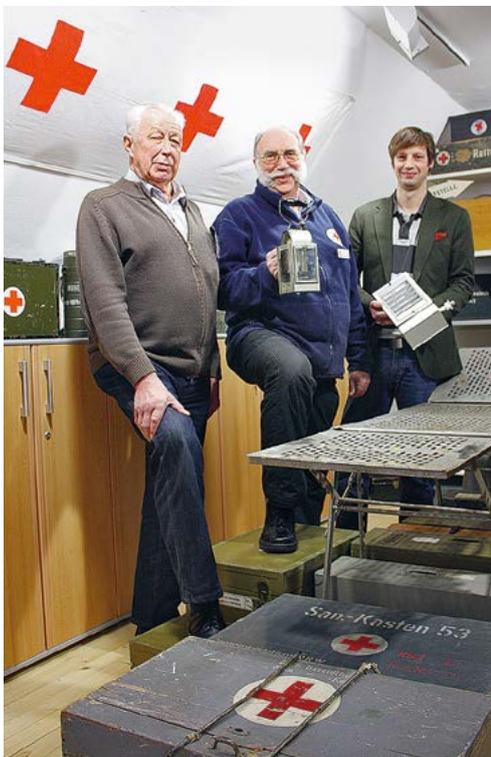


At the instigation of Klaus Vamberszky, Executive Vice President Technology of the Zumtobel Group, photonics will be introduced at schools in western Austria by the Vorarlberg regional government, throughout the Land, with effect from the summer semester of 2013. Pupils from the fifth grade onwards are going to be made familiar with the technology by means of the "Photonics Explorer" experimental kit. Photonics is the science of the generation and manipulation of light. It is part of LED lighting, TV/computer/cell phone displays and

photovoltaic cells, for instance. "As a company active in the lighting industry, we depend on qualified junior staff. It is difficult to find skilled staff in this field. Making pupils familiar with photonics and stimulating their scientific curiosity is accordingly very important for our future," emphasises Klaus Vamberszky. The school kit was developed and subsidised at European level. The Zumtobel Group itself plans to use the kit in various areas, such as customer dialogue management, the "Long Night of Science" and for (further) training.

## Red Cross collection illuminated by Zumtobel

Zumtobel Lighting in Lemgo supports the Red Cross with spotlights to illuminate the "Rotkreuz-geschichtliche Sammlung in Westfalen-Lippe e.V.". After more than two years of preparation, the museum opened its doors in the German municipality of Schlangen in March 2013, precisely the year of the 150-year anniversary of the German Red Cross. With a floor space of more than 200 m<sup>2</sup>, the premises provide a decent setting for the huge collection, previously accommodated by the current head of the museum and his wife in their private home. The exhibits perfectly illuminated by Zumtobel refer to humanitarian commitment and serve to spread the humanitarian idea – an important social task, which the Zumtobel Group also addresses within the management of its brands.

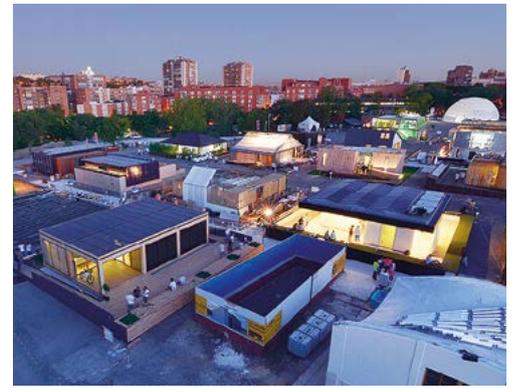


## Thorn UK plays for a charitable purpose

Interest was high when, on 9 November 2012, the staff team of Thorn UK played against Spennymoor Town XI on the occasion of a charity football tournament – in memoriam of two late colleagues. The annual charity event was organised in honour of Thomas McCrone (†2010) and Norman Green (†2012). The proceeds from the game in the amount of £1,100 were donated in equal parts to the charitable organisations Great North Air Ambulance and British Heart Foundation. The 2011 match for the Thomas McCrone Cup yielded £570 for charitable purposes.

## Tridonic supports "Lebenshilfe"

Tridonic Dornbirn started cooperating with the Vorarlberg Lebenshilfe association in April 2011. Overall, seven handicapped persons take turns in coming to assist with administrative work at Tridonic twice a week. "The readiness to work and the motivation of Lebenshilfe staff is huge and tangible," reports Petra Hartmann, project manager at Tridonic. For the Lebenshilfe staff, this experience is a great pleasure, in particular affording them a chance to be part of society. The employees of Tridonic benefit from this social commitment by gaining enhanced awareness of this topic.



In the Solar Decathlon 20 university teams from all over the world competed in ten different disciplines.

# Zumtobel, Tridonic, 40 students and enlightening ideas

*ECOLAR, Solar Decathlon Europe 2012 – no, these catchwords are not part of a new lighting study of the Zumtobel Group, but refer to the university cooperation of the Zumtobel and Tridonic brands with HTWG Konstanz.*

Within ECOLAR, 40 students from six different faculties had the idea of developing a modular, energy-efficient and expandable building for the Solar Decathlon Europe 2012 architectural competition. The method of sustainable and energy-efficient building found favour with Zumtobel and Tridonic. Based on the expertise of both brands, Kay-Uwe Dingeldein, Zumtobel Lighting Dornbirn, designed the lighting concept for the building together with the students. For the lighting solution, the use of LEDs (light-emitting diodes) as energy-efficient light sources was preferred.

After intensive lighting design training, the students were also granted a licence for Vivaldi, a software programme developed by Zumtobel to visualise lighting scenes and light colours. The required luminaires – fitted with energy-efficient Tridonic ballasts – for the ECOLAR house were sponsored by Zumtobel and Tridonic.

Suspense was high at the Solar Decathlon Europe 2012 competition in Madrid, an architectural competition of international renown. The students were ranked fourth on aggregate with their project; in the individual categories they managed to achieve two further sole leads and one third place. Apart from

this outstanding performance, participating in the competition and travelling to Madrid was in itself a great experience for the students.

The cooperation is being continued after the competition. Within the scope of the Zumtobel seminars for lighting designers in Dornbirn, the students present their ECOLAR project in a lecture. The presentation is clearly felt to be an asset in the everyday project landscape and is considered today as "best practice" for sustainable lighting solutions by Zumtobel | Tridonic, using LED technology.

Moreover, there are some ideas for sustainable use of the ECOLAR house in Constance by the Zumtobel Group; possible options are LED workshops and customer visits on site.

The cooperation with HTWG Konstanz (Hochschule Konstanz | Technik, Wirtschaft und Gestaltung) is one example of numerous Zumtobel Group cooperations in the educational sphere. As one of four core areas, education/training is an important field of social commitment in the Zumtobel Group and an integral part of its Corporate Citizenship activities.

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