

ERCO, The Light Factory; Lüdenscheid, Germany

Developing a New Reflector Generation Using LightTools



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ERCO

Dr. Matthias Bremerich, Chief Illumination Engineer, ERCO

The Goal

ERCO, headquartered in Lüdenscheid, Germany, specializes in producing engineering hardware and software for architectural lighting. ERCO's indoor luminaires, outdoor luminaires, and lighting control systems comprise an extensive range of lighting equipment for architectural lighting solutions. ERCO set out to create a breakthrough reflector design that would allow easy and flexible adaptations to be made to a variety of architectural lighting applications, including narrow spot, flood, and accent lighting.

ERCO used LightTools to create the innovative Spherolit reflectors, which are distinguished from conventional reflectors by their three-dimensional spherical curvature that can be shaped for specific light distributions.

“Throughout the development of the Spherolit reflector technology, I could rely on my LightTools simulation results,” said Dr. Matthias Bremerich, chief illumination engineer at ERCO. “LightTools predicted critical features in the light distribution with high accuracy. Using its powerful virtual prototyping capabilities, we saved several iterations of hardware prototypes.”

The Design

The Spherolit technology supplies various light distributions from a series of reflectors with identical footprints.

Accurate source modeling was crucial for the development of the Spherolit reflectors. In LightTools, ERCO defined a source model that shows all details of measurements of an HIT (metal halide) lamp in the near field and far field.

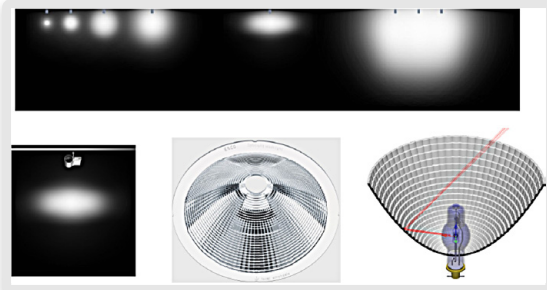
The symmetric and asymmetric light distributions were achieved by a dedicated layout of cushion-shaped reflector facets. Parametric design and macro programming in LightTools made this possible.

The Results

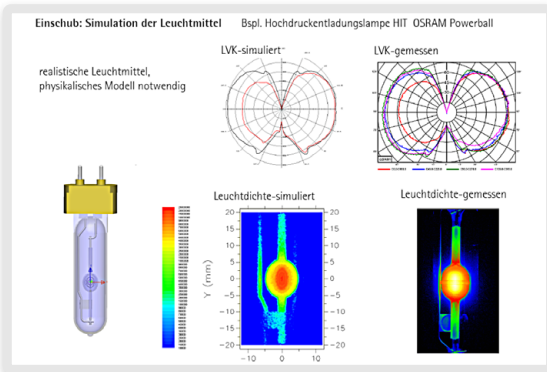
The breakthrough and exclusive technology in ERCO's Spherolit reflectors presents an ideal light quality and offers many practical advantages to lighting designers and users. The Spherolit reflectors are now successfully used in several new product lines. ERCO has effectively invented an entirely new, central element of lighting technology.

“To develop this new generation of Spherolit products was a tough challenge,” said Dr. Bremerich. “Without LightTools by Optical Research Associates (ORA) [now part of Synopsys] and support from their German distributor OEC AG, we would have had a lot more work, effort

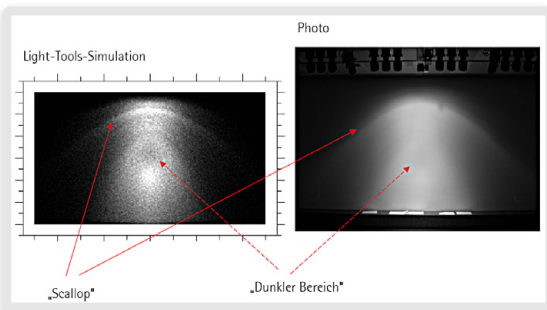
and money to reach this important goal. ERCO is a highly successful company in the area of developing, building and trading luminaires, and we are quite happy to be able to rely on our partners ORA and OEC for the design of innovative new products.”



The Spherolit light distributions are achieved with cushion-shaped reflector facets.



Spherolit source model and analysis results in LightTools.



LightTools simulated results versus actual results.

The Goal

Create a reflector design that can be easily adapted to a wide range of architectural lighting applications. Use virtual prototypes to minimize development costs.

The Solution

Use LightTools for accurate virtual prototyping of reflector and source models.

The Results

Spherolit reflectors feature unique three-dimensional spherical curvatures that can be shaped for specific light distributions

ORA Distributor

OEC AG

All images courtesy of ERCO.

To learn more about ERCO, The Light Factory, visit www.erco.com.

To learn more about LightTools, visit www.opticalres.com/lt.

