

Sustainable illumination

YASMEEN zoom: LEDiL uses PLEXIGLAS® molding compounds to produce high-performance lenses for flexibly adaptable lighting solutions

- **Sustainable lighting solution: YASMEEN zoom combines adaptable beam angles with high efficiency and compact design**
- **Two-piece lens system made of PLEXIGLAS® molding compound from Röhm**
- **PLEXIGLAS® molding compounds impress in lighting applications thanks to their high light transmittance, precise mold surface reproduction and longevity**

Whether focusing on a special offer at a retail store, a piece of art in a gallery or as an accent in architecture – light directs people’s attention. The Finnish company LEDiL has developed YASMEEN zoom as an innovative lens system for compact and energy-efficient illumination designs. It features the highest lighting quality along with the flexibility of an easy-to-adjust zoom lens. PLEXIGLAS® molding compounds enable the necessary brightness: “Our brand PMMA is ideal for sophisticated lenses – its high transparency guarantees excellent light transmittance, while its good flow properties ensure precise mold surface reproduction during injection molding,” says Dr. René Kogler, Global Strategy & Marketing for Lighting, Extrusion, Optics at Röhm.

Flexible lighting solutions for changing illumination concepts

LEDiL has been producing lens systems for renowned manufacturers of professional lighting solutions around the world for the past 20 years – from street to sports venue lighting, to lighting concepts for the retail trade, offices and architectural applications. “We want to create the perfect light for every application,” states Olli Laakkio, Business Unit Director Indoor Lighting at LEDiL. “Our aim is to take products to the next level and develop new possibilities.” Hence, LEDiL is adding YASMEEN zoom to its product family for track system spotlights and downlights in order to offer greater flexibility. In contrast to the static beam angles in previous optics, the zoom function allows the light focus to be set very precisely and the illuminated area to be modified flexibly. “YASMEEN zoom makes it possible to build a luminaire that does it all,” Laakkio adds. “This allows lighting designers to create changing illumination concepts without detailed preliminary planning, while also acting sustainably – after all, one and the same luminaire can be used highly effectively in various situations.”

For its multi-award-winning product innovation, LEDiL relies on PLEXIGLAS® molding compound – a material that has a proven track record with the global optics specialist. “We have used PLEXIGLAS® right from the early days of LEDiL and have received considerable professional support from Röhm over the years, whenever we developed new lenses or had to master special challenges in production,” Laakkio says. The fact that PMMA molding compounds from Röhm are available globally is another advantage for the Finnish company with its production facilities spread around the world. “Our customers rely on the consistently high quality of our lenses, and we in turn rely on the fact that the materials we use deliver what they promise,” Laakkio emphasizes. “PLEXIGLAS® molding compounds provide us with outstanding optical properties and high reliability in terms of mechanical and processing characteristics during injection molding.”

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Two-piece lens allows zooming without axial displacement

At the heart of the design (patent pending) is a special lens system comprising a collimator lens, which focuses the LED light via total internal reflection, and a second, attached zoom lens. If the latter is rotated, the beam angle can be varied steplessly between 15 and 45 degrees. "This design is a key difference between our system and other zoom optics, which require axial displacement of the lenses toward one another, in turn taking up lots of space and making the product design more complicated while lowering efficiency," Laakkio emphasizes.

The YASMEEN zoom lens system can be installed in commonly used luminaire constructions thanks to its compact design – and its efficiency is comparable to static lens systems. With its light transmittance of 92 percent, PLEXIGLAS® plays a considerable role here. "We experience practically no absorption losses, which would otherwise add up when two successive lenses are used," explains Laakkio. Thanks to their efficiency and precise light control, the lenses also help reduce the amount of energy consumed due to illumination.

Flexible use in a wide range of application scenarios

While spotlights with a zoom function were previously regarded as a special application and produced in limited quantities, YASMEEN zoom opens up a broad range of applications to meet fast-changing illumination requirements. In the retail sector, this could be when the room partitioning is changed or when other products are to be the focus of attention.

The zoom system is available in two sizes – YASMEEN-50-ZOOM and YASMEEN-70-ZOOM – for different LED powers. Both systems offer the same lighting quality and light control as the other optics available in the product family. In combination with tunable white LEDs, the optics ensure complete flexibility within the color temperature of the white light. "This is a fantastic feature for lighting designers who can create spectacular results with minimal lead times," comments Laakkio, perfectly in keeping with LEDiL's mission: "Perfect light for a luminous future."

[Images]



The Finnish optics specialist LEDiL uses PLEXIGLAS® molding compounds from Röhm for its product innovation, YASMEEN zoom. These are ideal for sophisticated lens designs thanks to their high transmittance and good mold surface reproduction.

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At the heart of the design (patent pending) is a special lens system comprising a collimator lens, which guides the LED light via total internal reflection (TIR), and a second, attached zoom lens.

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By turning the zoom lens, the beam angle can be adjusted continuously between 15 and 45 degrees. This makes the system stand out from other zoom functions with axial displacement.

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YASMEEN zoom provides lighting designers with creative freedom without the need for extensive preliminary planning, for example for quickly changing shopfitting concepts in retail stores.

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