

Optical Design

IMAGING OPTICS
ILLUMINATION OPTICS
OPTICAL SYSTEM ANALYSIS

Optical Design

UNDERSTANDING YOUR APPLICATION

Using our expertise in the fields of imaging optics and illumination optics, we can help you at every stage of your product development process, from the specification sheet all the way to the implementation of the serial production of your product.



A ROAD TO SUCCESS

Feasibility study

- General consulting
- Physical system analysis & troubleshooting
- Finalization of specifications

Custom lens design

- Innovative concepts
- Lens design optimized for high yield
- Optomechanical design

Manufacturing

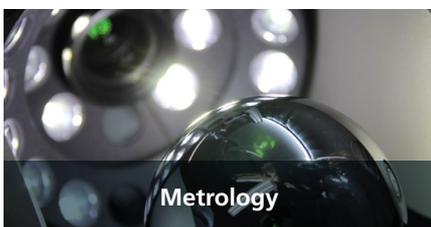
- Prototyping and series manufacturing
- Performance characterization
- Assembly in clean room

Customer testimonial

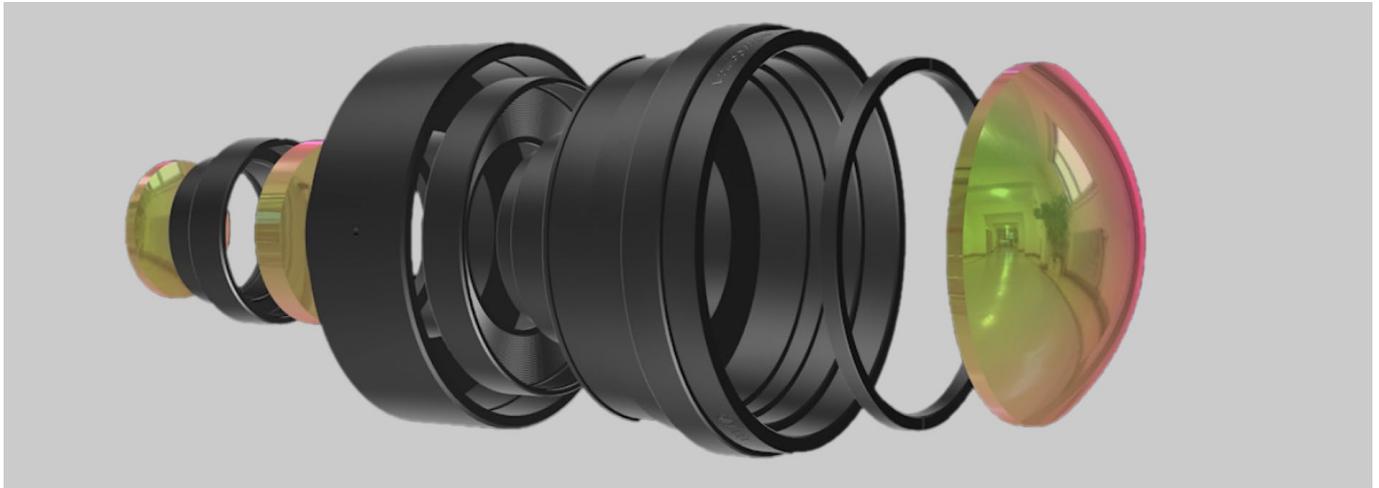
"DIOPTIC's brilliant design idea enables the solution more systematically, significantly reducing pressure for manufacturing and stocking in subsequent steps. Through their work style of balancing user's objective, production capacity, market positioning and other factors, we can feel, in an authentic way, the considerate, prudent and responsible attitude that DIOPTIC, as a German company, shows to us."

Zhonghua Liu, Optiger Optoelectronics Technology (Tianjin) Co., Ltd.

EXPERTISE IN VARIOUS INDUSTRY SECTORS



Imaging Optics



Tele lens

OPTICAL DESIGN

- Design of optical components up to complete optical systems from innovative concepts all the way to design for manufacturing
- Minimizing production rejects through high yield optimization
- Full access to lens design for proprietary manufacturing if desired

OPTO-MECHANICAL DESIGN

- Optical and mechanical design from one source ensures the best overall performance

TOLERANCING, STRAYLIGHT AND GHOST SUPPRESSION

- Rigorous analysis of potential sources of noise and ghost signals eliminates the risk of bad surprises after production
- Continuous tolerance analysis already in the concept phase leads to the best system matching the manufacturing process

PROTOTYPING AND SERIES PRODUCTION

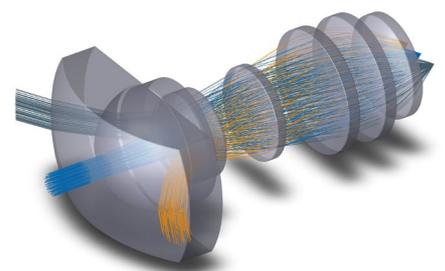
- Prototypes and small series can be assembled and tested in our clean room facilities

TEST SYSTEMS

- Various test systems available for testing components and systems: Form test of aspheres, surface defects, MTF measurement, distortion characterization



Augmented reality glasses

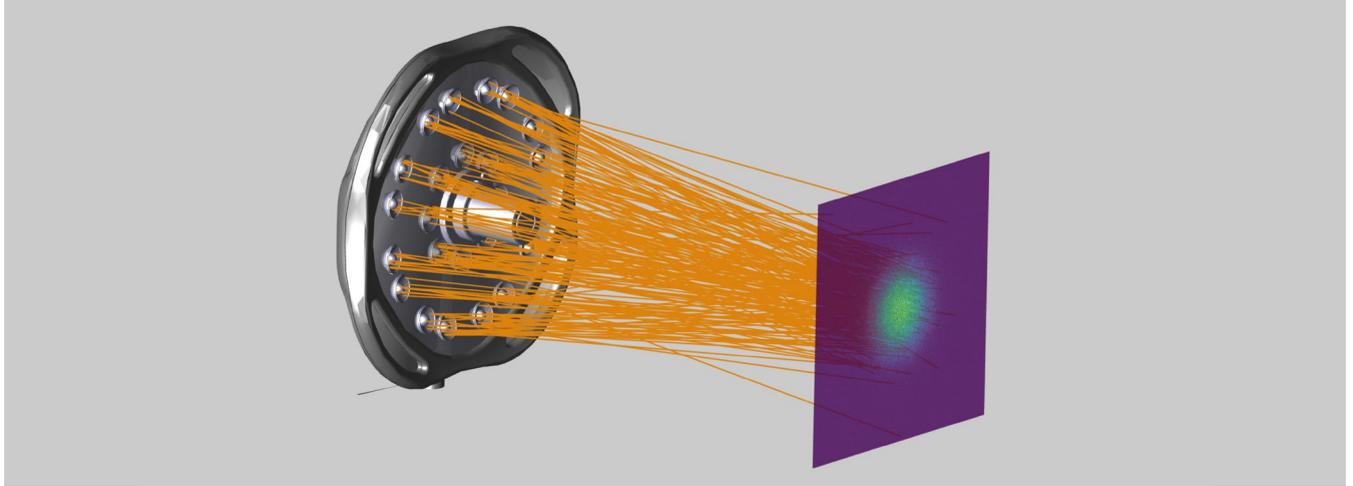


Receiver lens for LIDAR



Wide angle lens for advanced driver-assistance

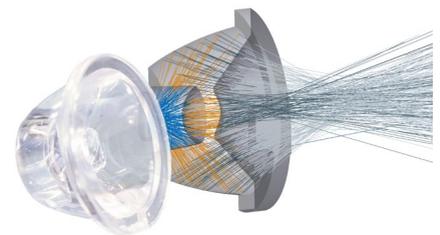
Illumination Optics



Operating light

ILLUMINATION OPTICS

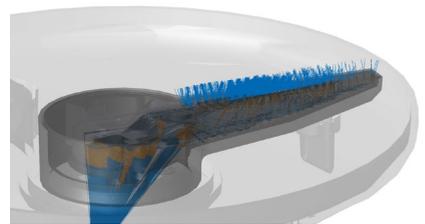
- General consulting
- Development of specific illumination scenarios
- Selection of LEDs and optics for sensor systems
- **Medical illumination projects:** development of TIR optics for homogeneous illumination in operating rooms
- **Automotive illumination projects:** homogeneous illumination of speedometer hand
- **In-line manufacturing projects:** homogeneous RGB illumination for substance-specific detection



TIR Collimator

STRAY LIGHT SIMULATIONS

- Deduction of concepts to eliminate system faults or improve performance of illumination systems and sensors with detailed analysis of stray light and ray paths



Speedometer Hand

PROTOTYPING AND SERIES PRODUCTION

- Optical, mechanical, and electronic components from one source
- Testing of concepts with functional models in in-house laboratory

YOUR ADVANTAGES

- Solutions and concepts independent of specific manufacturers in close communication with the customer
- Access to modern metrology methods, e.g. triangulation, CMM, and μ CT



RGB illumination for substance detection

Services

- Custom lens development
- System analysis & troubleshooting
- Feasibility studies
- Concept studies
- Laboratory setups / Prototyping
- MTF – measurements
- Optical simulations

Industry experience

- Automotive
- Medical technology
- Optical industry
- Metrology
- Sensor engineering
- Consumer products

Optical Design

Advantages with DIOPTIC

Multidisciplinary

Strong cooperation among different business units of DIOPTIC

- Optical Design
- Custom Inspection Systems
- Diffractive optics
- IR Lenses
- ARGOS inspection system for optical surfaces

Our quality

- One-stop solutions from research all the way to product development coordinated by DIOPTIC
- Certified according to ISO 9001:2015

Know-how of our expert team

- Experience in **imaging optics and illumination optics**
- Adept in the application of widely-used industry software like **Zemax OpticStudio & Synopsys CodeV** for lens design and system analysis
- Fundamental knowledge of the **state-of-the-art** of science and technology
- Data analysis, graphical user interfaces, control software, and image processing implemented in various **programming languages** (e.g. Matlab, Python, ...)
based on the customer's needs

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