

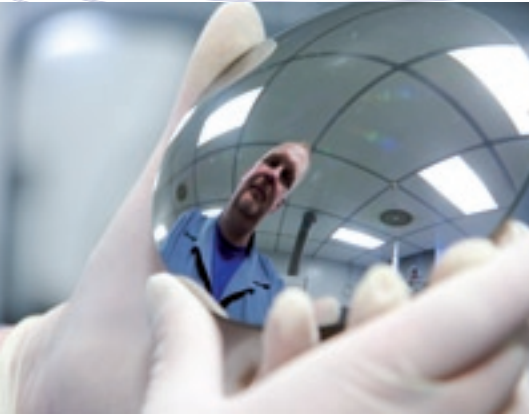


OPTICAL TECHNOLOGIES FROM JENA

First Optics and Photonics League

Precisely turned germanium lens – Jenoptik

GÖPEL electronic invests in the future



Jena is one of the German centres for optics and photonics. Internationally renowned companies such as Carl Zeiss, SCHOTT, Jenoptik and globally acknowledged research institutions are based here, creating individual solutions for demanding clients: In the optics and photonics industry this means, for example, high-power diode lasers, laser scanning microscopes, or aspherical lenses for specific optical filters. Jena is the location for experts, and the knowledge of the city's specialists is much asked for worldwide.

The great traditional location in Europe ...

In 1846, young Carl Zeiss founded a mechanical workshop with a seed capital of 100 thalers in Jena. There, he produced microscopes which turned into bestsellers. Zeiss later teamed up with the physicist Ernst Abbe and the chemist Otto Schott. Those three formed the first network of business and science in Jena. Their successful work created the basis for three international companies of today: Zeiss, Jenoptik and SCHOTT.

About 100 companies of the optical industry are currently located in Jena and its surrounding area. Altogether, they generate an annual turnover of 1.32 billion euros and represent the centre of the optical industry in Thuringia. According to a survey of the OptoNet association in 2009, 24 per cent of the Jena companies consider themselves the technological leaders when it comes to their main product, and another 65 per cent see themselves in a top position.

OptoNet is a Jena-based network for optical technologies which pools the interests of more than 90 companies, research and educational institutions, capital providers and public institutions. Jena is also home to the cluster CoOptics. Its aim is to further develop the optics-region Jena as a motor of innovation for optical technologies in Europe and to take an active part in the standards of training and advanced education in the field.

Renowned institutes such as the Institute of Photonic Technology (IPHT) and the Fraunhofer Institute for Applied Optics and Precision Engineering (IOF) are located in Jena. Researchers and entrepreneurs team up effectively for innovations. Since 1995, approximately 2.000 patents for optical technologies have been granted in the region of Jena. To the focal points of top level research at the Friedrich Schiller University belongs the section

“Optics, photonics and photonic technologies – Abbe school of photonics”.

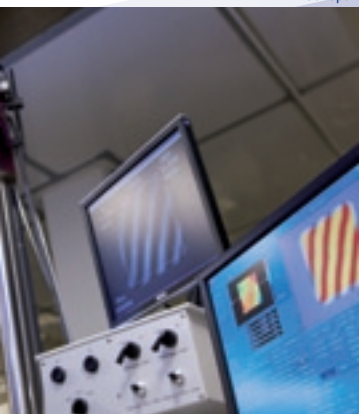
Companies will find fully-fledged employees in Jena among the graduates of the course of studies “Laser and Optotechnologies” of the University of Applied Sciences Jena and among the graduates of the Friedrich Schiller University Jena who are taught at the Institute of Optics and Quantum Electronics, the Institute of Solid State Physics, the Institute of Applied Physics and the Institute of Applied Optics.

Solutions for highest demands ...

The high-quality products, goods and services from Jena are appreciated worldwide. The range of services includes:

- Optical components in great variety (for example refractive and diffractive optics or prisms, micro-optical systems, large optics for the manufacturing of microchips, glass fibres, optics with high performance coatings, optical systems made of different materials such as glass or plastics)
- Technologies in the field of photonics (lasers with super-short flashes, diode lasers, high-power diode lasers, gas and solid-state lasers such as fibre or disk lasers, laser systems, scientific apparatus engineering for the field of bio-photonics or measuring technology)
- Various applications (for example LEDs in street lighting, complete systems for biometrical identification, optical inspection systems for photomasks of the semiconductor industry, electron beam based reparation systems for repairing mask malfunctions in the nanometer range)

Interferometric measuring of optics – Jenoptik



Precision turning of optical components – Jenoptik



Function test of control units in the field of Automotive Test Solutions – GÖPEL electronic



- Optoelectronic instruments, sensors and software solutions for the aerospace industry as well as the famous planetarium projectors of Carl Zeiss Jena
- Technical glass (for example floated borosilicate glass, special glass for fire-resistant glazing, safety and security glass, rolled thick glass, bullet-proof glazing)

Success stories from Jena ...

asphericon GmbH www.asphericon.com

Carl Zeiss Jena GmbH www.zeiss.de/scjena

Carl Zeiss AG, Planetarium www.zeiss.de/planetarien

Carl Zeiss MicroImaging GmbH www.zeiss.de/micro

Carl Zeiss SMS GmbH www.smt.zeiss.com/sms

Cross Match Technologies GmbH www.crossmatch.com

GÖPEL electronic GmbH www.goepel.com

GRINTECH GmbH www.grintech.de

HELLMA Optik GmbH Jena www.hellmaoptik.com

Jenoptik | Optical Systems www.jenoptik.com/os

Jenoptik | Laser & Material Processing www.jenoptik.com/lm

Jenoptik | Defence & Civil Systems www.jenoptik.com/vzs

j-fiber GmbH www.j-fiber.de

LASOS Lasertechnik GmbH www.lasos.com

Leistungselektronik JENA GmbH www.lej.de

LUCAS instruments GmbH www.lucas-jena.de

Mahr OKM GmbH www.mahr.de

MAZeT GmbH www.mazet.de

mso jena Mikroschichtoptik GmbH www.mso-jena.de

Optikron GmbH www.optikron.de

SCHOTT Technical Glass Solutions GmbH www.schott.com

Vistec Electron Beam GmbH www.vistec-semi.com

Networks, research and education ...

Beutenberg-Campus Jena www.beutenberg.de

CoOptics GmbH www.cooptics.de

Fraunhofer Institute for Applied Optics and

Precision Engineering IOF www.iof.fraunhofer.de

Friedrich Schiller University Jena:

• Faculty of Chemical and Earth Sciences

..... www.uni-jena.de/en/Chemistry_and_Earth_Sciences.html

• Faculty of Physics and Astronomy www.physik.uni-jena.de

INNOVENT Technology Development Jena.. www.innovent-jena.de

Institute of Photonic Technology (IPHT) www.ipht-jena.de

OptoNet www.optonet-jena.de

SpectroNet & VisQuaNet www.visquanet.de

University of Applied Sciences Jena www.fh-jena.de

***In Jena you'll meet the industry insiders
of the optics and photonics industry.***

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*»GigaPixel technologies with
realtime multi angle picture capturing,
reference speed exceeding 40cm²/s
including 3D capture ...«**

Optical Technologies from Jena
Location for the advanced.

* source: GÖPEL electronic GmbH