

Press Release



April 25th, 2012 – Warsaw, Poland / Jena, Germany

Vistec provides ITME in Warsaw with a high-performance electron-beam lithography system

Vistec Electron Beam GmbH, a leading supplier of electron-beam lithography systems, announced that the noted Institute of Electronic Materials Technology (ITME) in Warsaw purchased a Variable Shaped Beam system SB251 from Vistec. The advanced lithography tool will be used for research and manufacturing of various kinds of micro-optical and diffractive elements, new materials as well as masks for optical lithography.

As a leading research institute in Poland, ITME is working in the multidisciplinary area of research, development and manufacturing of materials, innovative devices and components for application in electronics, micromechanics and optoelectronics. "We selected Vistec's electron-beam writer to support our research, development and manufacturing efforts due to its high performance and flexibility. We anticipate that the new Vistec SB251 will significantly contribute to successfully meet our research and development agenda.", said Dr. Zygmunt Luczynski, director of ITME. The decision was made as a result of a European tendering procedure.

The Vistec SB251 is a universal system, which has been designed for both direct write as well as mask making exposures. The system is capable of handling and exposing

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transparent & non-transparent materials, which are in use in semiconductor and optics applications. Equipped with a 50kV electron optics, an address grid of 1nm and an exposure platform with a stage travel range of 210mm x 210mm the system enables lithography below 50nm on various substrates from pieces up to 200mm wafers and 7inch masks. A Graphical User Interface (GUI) and fully automated cassette-to-cassette substrate handling allow the effective usage in a diverse, multiuser environment at Institutes like ITME. Furthermore the system features the data preparation software package ePLACE (provided by EQUIcon GmbH).

“With the Vistec SB251 our long term partner ITME receives an advanced electron-beam lithography system. Due to its high flexibility and reliability the SB251 is perfectly tailored to the diversified applications ITME is facing now and will be challenged with in the future.”, comments Wolfgang Dorl, General manager of Vistec Electron Beam. “We are very pleased that ITME placed the order with Vistec, which further continues our successful collaboration started more than 20 years ago.”

Media Information:

ITME

ITME is a leading Polish Institute of multi-research to develop new materials and materials based on these innovative tools and components for applications in electronics, microsystems, optoelectronics, micromechanics, metrology, etc.

High-tech materials, instruments and components developed at the Institute enable scientific collaboration with universities and research institutes, are published in Polish and international journals, offered to interested customers to implement their projects, implemented in the industry or used for short series production within the Institute.

The ITME manufacturing technologies are being developed for single crystals of semiconductor materials, oxide crystals (optical, piezoelectric), super-pure metals, glass active. Nanotechnologies are widely used in studies of new materials such as photonic crystals, meta materials make it possible to produce super-pure materials, glass active fiber, photonic, a new (active and transparent) nano-ceramic and composite materials, which have unique properties in a wide range of applications.

The Institute developed epitaxial structures for electronic and optoelectronic devices, innovative lasers, photo detectors, sensors, filters, piezoelectric, diffractive lenses.

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The idea of single-crystal growth method invented by [Prof. Jan Czochralski](#), (widely used in the world) is continued at the Institute. Development of this method, leads to the subsequent development of highly advanced technologies in a field of semiconductor and oxide single crystals.

R & D works of ITME cover the following areas:

Materials

- Single crystals of silicon (Si plates undercoats, class of sensors, high-quality, precision-oriented, with a diameter of 6 inches)
- Epitaxial layers on silicon (high resistivity and thickness) porous silicon, epitaxial silicon layer porous plate welded Si, SOI's,
- Semiconductor compounds III / V (GaAs, InP, InAs, GaP) shallow epitaxial structure,
- Oxide crystals - materials for lasers, passive Q modulators, scintillators, electro-optical and piezoelectric devices, the substrate for superconducting layer HTSc, nonlinear and optoelectronic materials,
- Epitaxial structure on GaN,
- Epitaxial plates and layers of SiC,
- Self-organizing materials, meta-materials, photonic crystals
- New pottery of different shapes and sizes, ceramic composite, metal-ceramic composites, ceramic-metal joints
- Glass selling specially designed spectral characteristics, optical fibers, optical fibers and photonic active,
- Pastes for hybrid microcircuits.

Processing:

- Design and manufacture of masks
- Deposition of thin films: dielectrics (SiO₂, Si₃N₄, AlN) multilayer metallization
- Lithography: copy the contact in the deep UV, electron-beam pattern generation
- Etching (RIE and ICP RIE), controlled digestion of the side walls in the deep, deep etching profiles of tens microns

Measurements:

- Characterization of materials
- I-V measurements, the C-V analysis
- Measurements of impedance matrix elements distributed to the 20GHz frequency
- Measurements of low levels of noise at frequencies up to 100kHz
- Measurements of lasers and photo detectors
- Characterization of optoelectronic and microelectronic devices

Components and devices:

- Rods, optical fibers, filters, lenses, two-dimensional photonic microstructures
- SAW filters, resonators, sensors, actuators
- Passive components on the membranes (sensors)
- Filters, resonators, sensors and actuators with AFP
- Active devices (lasers, transistors, photo detectors, Schottky diodes)

Many of these jobs have a high innovative nature of the confirmed agreements with several major industries in the world.

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Vistec Electron Beam Lithography Group

The Vistec Electron Beam Lithography Group is a global manufacturer and supplier of electron-beam lithography systems with applications ranging from nano and bio-technology to photonics and industrial environments like mask making or direct writing for fast prototype development and design evaluation. The Vistec Electron Beam Lithography Group combines Vistec Lithography and Vistec Electron Beam.

Vistec Electron Beam

Vistec Electron Beam is providing electron-beam lithography equipment based on Shaped Beam technology, which is used by leading semiconductor manufacturers and many research institutes around the world. Their innovative electron-beam systems are used for microchip production and integrated optics as well as for scientific and commercial research.

Vistec Lithography

Vistec Lithography develops, manufactures, and sells electron-beam lithography equipment based on Gaussian Beam technology. Their electron-beam systems are accepted world-wide in advanced research laboratories and universities.

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