

### Company Portrait

3D-Micromac AG is the industry leader in laser micromachining. We develop processes, machines and turnkey solutions at the highest technical and technological level. Our aim is to provide superb customer satisfaction even for the most complex projects.

3D-Micromac delivers powerful, user-friendly and leading edge processes with superior production efficiency. These proprietary technology innovations are now readily available on a worldwide scale.

### Facts and Figures

<b>Foundation</b>	2002
<b>Headquarter</b>	Technologie-Campus 8, 09126 Chemnitz, Germany
<b>Employees</b>	~ 190
<b>Total output 2015/16</b>	32.8 Mill. €
<b>Products</b>	Laser micromachining processes, machines and turnkey solutions
<b>Target markets</b>	Semiconductor/MEMS, Photovoltaics, Display & Smart Glasses, Medical Device Technology, Flexible Electronics
<b>Subsidiaries</b>	3D-Micromac America LLC, San Jose 3D-Micromac Laser Technology (Wuxi) Co., Ltd.
<b>Production facilities</b>	Chemnitz, Germany Wuxi, China
<b>Customers</b>	More than 300 industrial installations worldwide

## Milestones in our Company's History

- 
- 2002
    - Founding of 3D-Micromac AG
  - 2003-06
    - Market launch of the world's first commercial laser system utilizing ultra-short pulse laser
    - Development of industrial-suited excimer-laser system for ophthalmic lenses
    - Beginning of developmental work of roll-to-roll laser machining of flexible materials
  - 2007
    - Winner 'Innovation Prize' by the Free State of Saxony
  - 2009
    - Construction of a company building at the 'Smart Systems Campus' in Chemnitz
  - 2010
    - Successful market launch of production systems for the manufacturing of nozzles via excimer-laser
  - 2011
    - Awarded the 'SPIE Green Photonics Award'
    - Winner of the 'Excellence Award' at the Taiwan Laser Application Forum
    - Transfer of the microFLEX Roll-to-Roll system into industrial series production
  - 2012
    - CEO Tino Petsch is honored as 'Entrepreneur of the Year' in Saxony
    - Construction of the microFLEX-Center
  - 2013
    - Solar Industry Award in the Thin Film Innovation category
    - Strategic realignment focusing on industrial growth markets
  - 2014
    - Technology acquisition for Thermal Laser Separation (TLS-Dicing™)
    - Successful market launch of production systems for Laser Contact Opening
    - Founding of 3D-Micromac America, LLC
  - 2015
    - Solar Industry Award in the PV Tool category
  - 2016
    - Founding of 3D-Micromac Laser Technology (Wuxi) Co., Ltd.
    - Opening of the 3D-Micromac America headquarter and applications lab in San Jose, CA
  - 2017
    - New company headquarter

## Products and Branch Solutions

### **microSHAPE™ Laser Systems for Processing Display and Smart Glasses**

3D-Micromac offers unique processing technologies and innovative production solutions for low-cost and high-quality laser processing of glass and sapphire, such as microSHAPE™ for laser cutting and FSLA™ (Flow Supported Laser Ablation) process. All methods comply with the requirements of industrial display production and guarantee clean and gentle processing.

### **microCELL™ Laser Systems for Photovoltaics**

The microCELL™ production solutions, such as high performance laser processing for Laser Contact Opening (LCO) of high efficient PERC solar cells as well as laser dicing of full cells into half cells with Thermal Laser Separation (TLS-Dicing™), are designed to meet cell manufacturers' demands for achieving maximum throughput rates and yield while diminishing cell manufacturing costs.

### **microDICE™ Laser Micromachining Solution for Semiconductor Manufacturing**

Industry trends toward increasing miniaturization and continuously increasing efficiency requirements of electronic components have driven manufacturers of semiconductor-based components to find new solutions. To be efficient and profitable, production equipment needs to stay up-to-date to meet these new requirements. Thus, 3D-Micromac develops future-oriented laser processes and system solutions to optimize existing production processes. We provide production equipment for the separation of semiconductor wafers using TLS-Dicing™ Technology.

### **OEM Laser Systems for Medical Device Technology**

In the manufacturing of medical instruments and implants, precision and machining quality on ever-smaller structures are playing an important role. Laser technology, due to its selective and non-contact processing, offers optimal conditions for efficient and inexpensive concepts. 3D-Micromac develops reliable OEM-solutions and customer-specific laser systems for the production of medical engineering components that are precisely aligned with the requirements of the medical technology manufacturers.

### **Roll to Roll Laser Systems for Processing of Flexible Electronic Devices**

As one of the important future technologies, flexible electronics creates a variety of novel application opportunities. To satisfy these possibilities, 3D-Micromac has developed a modular roll-to-roll production system called microFLEX™. This system features a combination of laser processing and print technology and easily adapts to changing markets, which allows customers to maintain a deciding technological edge in product development.

Events 2017/2018

Fair	Date	Location	Booth no
	26 – 29 Jun 2017	New Fair Munich	A2 - 121
	11 - 13 Jul 2017	Moscone Convention Center, San Francisco, US	7717
	13 - 15 Sept 2017	Taipei Nangang Exhibition Center Taipei, Taiwan	J2912
	18 - 21 Sept 2017	Wardman Park Marriott, Washington D.C., USA	207
	20 - 22 Sept 2017	India Expo Center, Greater Noida, India	tbd
	18 - 20 Oct 2017	Nangang Exhibition, Hall Taipei, Taiwan	tbd
	14 - 16 Mar 2018	Shanghai New International Expo Centre, Shanghai, China	N1-1685

### Company management

#### Tino Petsch

CEO and founder of 3D-Micromac AG

**Topics: Strategic company development, Investment management, Investor relations, IP management**

Tino Petsch was born in 1967. Following training as a precision mechanic, he studied automation technology and process engineering. Since 1990, he has founded and headed various information and laser technology companies.

In 2002, Tino Petsch founded 3D-Micromac AG, which he has headed as CEO and principal shareholder. 3D-Micromac AG is the leading specialist for laser micromachining.

Tino Petsch is Chairman of the Board of Trustees of the Mittelsachsen Laser Institute, member of the Board of Trustees of the Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology (FEP), member of the Board of Trustees of the Fraunhofer Institute for the Microstructure of Materials and Systems (IMWS), and member of the Scientific Advisory Board at the Leibniz Institute of Surface Modification (IOM).

Tino Petsch is the author of a large number of national and international publications and has been involved in numerous patent applications.



#### Uwe Gey

Chief Financial Officer

**Topics: Corporate planning and controlling, Financing, Human resources and welfare**

Uwe Gey was born in 1972. He studied Business Management at the Technical University, Dresden. After completing his studies, he worked as a research assistant at the Faculty for Business Sciences at the Technical University, Dresden.

In 2001, he took up a post as a management consultant and accountant at PricewaterhouseCoopers. After joining 3D-Micromac, Uwe Gey has been appointed as Chief Financial Officer in 2006, with responsibility for the commercial department, human resources as well as IT administration.

In addition, in 2016 Uwe Gey has been appointed as Managing Director of 3D MicroPrint GmbH.



### Dr. Roland Giesen

#### Chief Operating Officer

**Topics: Materials management, Production planning and manufacturing strategy, Service strategy, Quality management and quality assurance**

Roland Giesen was born in 1968. Following his studies and doctorate at the RWTH Aachen University, he began his career at Infineon Technologies in Munich. Later at Infineon technologies Dresden and QIMONDA, his responsibilities included material cost reduction as well as sub-divisions of Production and Central Purchasing. Most recently, Roland Giesen worked at Applied Materials in International Procurement as well as Customer, Supplier and Service Management.



In 2015, Roland Giesen has been appointed as Chief Operating Officer at 3D-Micromac AG. Since then, he has been Head of Production Management, with responsibility for material management, project management and manufacturing business units as well as the assembly, commissioning and servicing of laser systems, and the quality management and quality assurance.

In 2016, Roland Giesen has been appointed as Managing Director of 3D-Micromac Laser Technology (Wuxi) Co., Ltd. in China.

### Uwe Wagner

#### Chief Technology Officer

**Topics: Technology management, Technology development and engineering, Innovation management, Research cooperation**

Uwe Wagner was born in 1971. He studied Electrical Engineering/ Communication Engineering at the University of Applied Sciences and Arts, Hanover and began his professional career at the Laser Zentrum Hanover (LZH). In the following years, he worked for LPKF Laser & Electronics AG, Jenoptik Automatisierungstechnik GmbH and Jenoptik Laser GmbH, where his responsibilities included Product Management, International Sales and the development of new business fields, as well as Business Development for the Laser & Material Processing division at Jenoptik.



Uwe Wagner has been working for 3D-Micromac AG since 2012. After an initial period in business development, Uwe Wagner was appointed as Chief Sales Officer in 2013. In 2017, Uwe Wagner has been appointed as Chief Technology Officer at 3D-Micromac AG. He is the technological head of the Chemnitz mechanical engineering company, being responsible for the process, concept and software development, the engineering as well as the R&D.

In 2016, Uwe Wagner has been appointed as Managing Director of 3D-Micromac America, LLC.