

IVAM Product Market “Micro, Nano & Materials” at Industrial Automation/HANNOVER MESSE 2012

April 23-27, 2012, hall 17/booth C48

IVAM Product Market 2012 shows microtechnology solutions for industrial applications

For the first time, the IVAM joint pavilion will take place in hall 17 at HANNOVER MESSE. A new exhibition area provides a platform within “Industrial Automation” for prospective issues. Suppliers of up-to-date high technologies present themselves in the direct environment of the production automation. In addition to that, visitors and exhibitors benefit from topical as well as physical proximity to linear drives, power transmission, robotic and automation solutions that will be set up in hall 17, too.

The new special area “MicroTechnology – Smart Systems for Automation“ shows the whole scope of innovative microtechnology solutions within the „Industrial Automation“ show. Heart of the new special area is the Product Market “Micro, Nano& Materials“, organized by the [IVAM Microtechnology Network](#).

The professional forum “Innovations for Industries“, also moving to Industrial Automation, deepens the main topics of the special area by presentations and panel discussions. All in all the forum offers around 60 international presentations during five days and gives all-embracing insight into international markets for applied micro- and nanotechnologies.

The exhibition will include numerous product highlights, which are introduced in the following overview.

Highest precision for industrial manufacturing

[KUGLER GmbH](#) develops and produces highly complex and sophisticated micro machine tools, ultra-precision optical and mechanical components as well as job order production of optical surfaces, mainly made of non-ferrous metals. The company is highly committed to research and development and focuses on innovative projects. Functional samples, prototypes or small and large series are manufactured according to client specifications or as commissioned development.

[PTF Pfüller GmbH & Co. KG](#) is a full service provider of high precise CNC milling and turning parts and assembly units, located in Germany and China. Production comes with 45 CNC 5 to 9 axis milling and turning machines, a grinding and wire eroding department.

Based on its vast experience in manufacturing optical media, in 2005 [CDA Datenträger Albrechts GmbH](#) began to manufacture other optical products using the then existing technologies, gradually adding further expertise in various fields. The combination of CDA’s key competences together with new technologies has enabled the company to be active today (and successful) in three vital business areas: optical media manufacturing, automotive and μ -functional solutions.

Optical solutions and highly precise lasertechnology for efficient production

Modern laser sources require highly dynamic motion systems to make full use of laser performance. The [Fraunhofer Institute for Laser Technology ILT](#) develops custom optical scan systems to exploit the potential of current high-power lasers. Different scanning principles and multi-beam techniques can be combined, depending on the application. Due to the use of these optimized systems the processing time is reduced significantly. In close collaboration with industrial partners, the ILT has developed a cost-effective inline coating process to produce highly wear resistant ceramic coatings on substrates with low temperature stability. The combination of printing and laser technology enables the production of uniform or structured coatings with a coating hardness of up to 1000 HV.

[Lumera Laser GmbH](#) presents at HANNOVER MESSE picosecond lasers which offer a micromachining technology applicable to any material, even composites, and feature sizes of 1-100 μ m. The company specializes in the development and manufacturing of ultrashort pulse lasers for industrial applications

and is the dominating supplier of such systems in the world market. With up to 75W TEMoo average power and pulse repetition rates of up to 1MHz are now available for high quality industrial micromachining. The price per watt ps-laser power drops by a factor of 10 in comparison to the RAPID laser – this opens up new industrial applications. Now more than 10-60 mm³ /min of material can be abated coldly without thermal side effects.

FISBA OPTIK AG is a world leader in optical systems and components. From simple lenses to complex optical components, the solutions created by FISBA are always perfectly tailored to specific customer demands and wishes. The exhibitor develops and manufactures lenses, laser modules, micro optics and advanced optical components for industrial applications.

Time-Bandwidth Products AG, technology leader for ultrafast lasers (proprietary SESAM technology), offers high-end picosecond lasers for industrial micromachining, 100% Swiss Made. The technically most advanced and robust lasers offer large flexibility and high repetition rates allowing perfect optimization of any machining process in terms of quality and speed. Industries are photovoltaic, semiconductor, machining, printing, medical, automotive and aerospace industry as well as watch making. At HANNOVER MESSE Time-Bandwidth Products presents its Duetto laser product line, which offers the most technically advanced picosecond laser systems that are mainly used for industrial micromachining, with optical power up to 50 W, 10 ps pulse width and excellent beam quality.

Positioning solutions and hydraulic systems for automation

Focusing on the field of automation, **Elliptec Resonant Actuator AG** participates in this year's exhibition to present its range of products for integration into applications of positioning and corresponding calibration. Compact drive units featuring integrated electronics and interfaces for external communication are available as linear and rotary designs for solving demanding positioning tasks efficiently, exemplarily presented by a pick'n'place series application. The high resolution of these drive units makes them suitable for usage in calibration devices as well. A pipetting setup demonstrates the variety of solutions possible by using a combination of multiple units. Furthermore, the first interactive prototype of the haptic feedback module is added to our showcase of products.

Feinmess Dresden has developed a very fast parallel-kinematic planar stage for adjustment and alignment applications. The FMD 3DOD stage allows a fast and precise linear correction movement in X- and Y- direction as well as in the rotational movement of the Z-axis. By means of three independent direct linear drives, that are equipped with a high-resolution absolute measuring system, the object is parallel-kinematically manipulated and rotated to the desired target position. The object slide is the only moving part. It „floats“ wear-free on an air film of some microns and is only kept in position by the force of the actuators. The correcting movements can be max. ± 1 mm (linear) and ± 1 deg (angular). The system is designed for a load up to 20 kg.

LEE Hydraulische Miniaturkomponenten GmbH was founded as a subsidiary of THE LEE COMPANY (Westbrook, Conn., United States) in 1979. LEE is a market-leading manufacturer and seller of miniature precision hydraulic components for the aerospace industry. The components are successfully used in fields as varied as the offshore industry, motor sports, the automotive industry and industrial and mobile hydraulics. The company also offers a product line with applications in medical and scientific technology, opening the way to a host of space-saving constructions.

Metrology systems for exact production control

InfiniteFocus is an optical high resolution 3D measurement system for quality assurance in the lab and in production. The micro coordinate measurement system by **Alicona Imaging GmbH** combines all functionalities of a coordinate measurement machine with that of a surface measurement device. User measure both form and roughness with only one system. Measurements reach a vertical resolution of up to 10 nm even across large vertical and lateral measurement areas. This high resolution is also achieved when measuring complex shapes with steep flanks, very small radii or strongly varying reflection properties. This also allows the measurement of compound materials. Typical applications are e.g. the form and roughness measurement of micro precision components.

FRT Fries Research & Technology offers a comprehensive range of metrological surface measuring systems for the non-destructive investigation of topography, profile, film thickness, roughness, abrasion and many other properties. More than 400 reputable international companies from the automotive, semiconductor, MEMS, optical, photovoltaic and many other industries equip their R&D and production departments with FRT metrology systems. FRT operates from Bergisch Gladbach, Germany, and maintains subsidiaries in China, Switzerland and the United States. Additionally, the company provides a distribution and service network in the USA, Asia and Europe.

“Advancing Measurements by Light”: **Polytec GmbH** develops, manufactures and distributes optical high-tech solutions for R&D and industrial quality control. Polytec Laser Vibrometer represents the gold standard for contactless vibration measurement and includes specific solutions for microstructures.

NanoFocus AG is a developer, manufacturer, and distributor of measurement technology and software packages for the characterization of technical surfaces. The optical measurement systems allow high-precision micro and nano scale 3D surface measurements.

Dispensing with micro precision

With the benchtop devices MD-E-60xx and OEM units MD-E-40xx **microdrop Technologies GmbH** complemented its product range. The new dispense controllers are designed for integration into the process environment of the user and allow the dosing of liquids in the pico- to nanoliter range. Micropipette or dosing head – the devices are capable of controlling all inkjet dispenser head types. The microprocessor concept allows digital adjustment of all parameters for 1 or 2 dispensers. In addition to digital trigger in- and outputs they have two serial ports: Either for PC operation or with a touch panel for manual control. Depending on the configuration the controllers come with a unique waveform shaping system for generation of small droplets (>15µm) from large nozzles.

Electronic engineering solutions and MEMS for industrial automation

The **Fraunhofer Institute for Electronic Nano Systems ENAS** focuses on research and development in the field of smart systems integration by using micro- and nanotechnologies. The product and service portfolio of Fraunhofer ENAS covers high-precision sensors for industrial applications, sensor and actuator systems with control units and evaluation electronics, printed functionalities like antennas and batteries as well as material and reliability research for micro electronics and micro system technology. The development, the design and the test of silicon-based and polymer-based MEMS/NEMS, methods and technologies for their encapsulation and integration with electronics as well as metallization and interconnect systems for micro- and nanoelectronics and 3D integration are especially in the focus of the work. Special attention is paid to security and reliability of components and systems. Application areas are semiconductor industry, medical engineering, mechanical engineering, automotive industry, logistics as well as aeronautics.

Future technologies, customized engineering solutions, customer-oriented service and high-end solutions from a single source: **FEAG GmbH** designs and implements electrical switching-, control- and testing-facilities for you that fit the highest requirements. FEAG is active in the fields of energy supply and distribution, photovoltaic systems, building services, transportation engineering, automation engineering, drive engineering, test stations, industrial process and special technology as well as in engineering and service/support. In Hannover, the company presents the Smart Power Center SPC: The SPC system line of types fixed-mounted / pluggable / withdrawable system is suitable for all switching, disconnection, distribution and control solutions which a main or sub distribution board is to be used for.

Energy Harvesting

The team of **DUROPAN GmbH** has now been concentrating for 10 years on the functionality of polymers as basis of synthetic materials. DUROPAN introduces the comprehensive assembling of the thermoelectric module “Thermal Transmitter” as engineering capacity and the thermal accumulator as special authority.

The thermal transmitter is a technology for direct transformation of heat energy in electric energy by establishing of a plastic surface with an extreme high absorbance ability for heat energy (infrared) – thermal accumulator.

Promoting innovations: international technology development

Micromachine Center (MMC) is a Japanese non-profit organization who supports micro- and nano-related industry development. Following companies are associated as examples: Panasonic, Sony, Omron, Canon, Denso, Fuji and many more. At the MicroNanoTec the MMC informs about the Exhibition Micromachine/MEMS which will present current Japanese research projects in the field of micro- and nanotechnology.

WISTA-MANAGEMENT GMBH is the operating company of the Berlin Adlershof Science and Technology Park. The company builds, rents out and operates in modern technology centers and supports the sale of property.

At HANNOVER MESSE, the **IVAM Microtechnology Network** will demonstrate the advantages it offers to high-tech suppliers. With IVAM's help, about 300 companies and institutes from approx. 20 countries open up innovative markets and set new standards. As a communicative bridge, IVAM accelerates the transfer of innovative ideas into profitable products. Apart from technology marketing, IVAM's activities include lobbying, market research, education and training as well as accessing international markets.

More information can be found at www.ivam.eu.

Further information:

Further information and an exhibitor overview including contact data can be found at <http://www.ivam.de/calendar/HM2012?lang=en>

Images for editorial use (including reference) can be downloaded at <http://web.ivam.de/dl/Pressefotos%20Hannover%20Messe>

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Captions and sources:

Alicona.jpg

Source: Alicona Imaging GmbH.

Duropan.jpg

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FEAG_1.jpg

PS-Power Switchgear Cubicle, MP-Universal module cubicle, IL-In-Line cubicle, CP-Power factor correction.

Source: FEAG GmbH.

FEAG_2.jpg

22kW Direct Online Starter with Motormanagement, Operator panel and Profibus-Link.
Source: FEAG GmbH.

Feinmess_Dresden.jpg

Source: Feinmess Dresden GmbH.

Fisba_1.bmp

Source: Fisba Optik GmbH.

Fisba_2.bmp

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Fisba_3.bmp

Source: Fisba Optik GmbH.

Fraunhofer_ILT_1.jpg

Demonstrator: combination of polygon and galvanometer scanner.
Source: Fraunhofer Institute for Lasertechnology ILT, Aachen.

Fraunhofer_ILT_2.jpg

Laser treated Wear Protection Coatings on Engine Components.
Source: Fraunhofer-Institut für Lasertechnik ILT, Aachen.

Kugler_1.jpg

Source: Kugler GmbH.

Kugler_2.jpg

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Kugler_3.jpg

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Kugler_4.jpg

Source: Kugler GmbH.

Lumera.jpg

Source: Lumera Laser GmbH.

Polytec_1.jpg

App LSV TMK-Ipsco.
Source: Polytec GmbH.

Polytec_2.jpg

PSV-400.
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Polytec_3.jpg

TMS TopSens.
Source: Polytec GmbH.

PTF.jpg

Source: PTF Pfüller GmbH & Co.KG.

Time-Bandwidth_Products.jpg

Duetto with glasses.
Source: Time-Bandwidth Products AG.

Wista_1.jpg

Centre for Microsystems and Materials in Berlin Adlershof.

Source: Berlin Adlershof – Wista-Management GmbH.

Wista_2.jpg

Centre for Microsystems and Materials in Berlin Adlershof.
Source: Berlin Adlershof – Wista-Management GmbH.

Wista_3.jpg

Centre for Microsystems and Materials in Berlin Adlershof.
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Forum.jpg

The forum „Innovations for Industry“ will take place in hall 17 for the first time.
Source: IVAM.