



Hans J. Michael GmbH

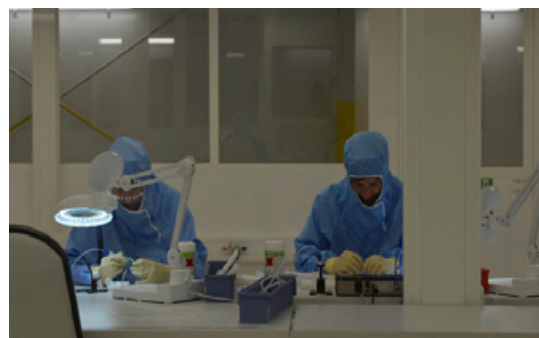


NORMA Group opens first cleanroom to manufacture joining solutions for use in the biotech and pharmaceutical industries

NORMA Group, a global market leader in engineered joining technology, put its first cleanroom into operation at its production site in Hustopeče, Czech Republic on 11 June 2015. From now on, single-use systems from CONNECTORS Verbindungstechnik AG (“CONNECTORS”), a subsidiary of NORMA Group SE, will be manufactured and packed under sterile conditions. The pharmaceutical and biotech industries use these custom-made single-use systems made of silicone to transport and store liquids and gases, but also to collect samples.

Werner Deggim, CEO of NORMA Group, says: “Opening our first cleanroom production facility represents an important milestone for NORMA Group in serving its customers in the pharmaceutical and biotechnology industries even better and reacting more quickly to their needs. With our new cleanroom, we now carry out the entire manufacturing process for our products, including quality control, on our own premises.”

The 150 m² cleanroom meets the ISO 14 644 Standard of Class 7 and offers capacities for another 800 m². NORMA Group has been manufacturing in the Czech Republic metal-based joining solutions such as retaining clips, hose clamps, pipe connectors and profile clamps since 1995. CONNECTORS has also been operating a cleanroom research department at its headquarters in Tagelswangen, Switzerland, since 2014 and markets clamps, valves, tubes and joining solu-



tions for the transport of fluids and gases in medical applications. CONNECTORS was established in 1985 and has been a NORMA Group company since 2012.

NORMA Group SE D 63477 Maintal

At this year's PAS-X User Group Meeting in Parsippany, New Jersey/ USA, Systec & Solutions, a specialized manufacturer of GMP IT hardware solutions for the pharmaceutical industry, and Werum IT Solutions – the market-leading provider of Manufacturing IT Solutions and Manufacturing Execution Systems (MES) for the pharmaceutical industry, presented a new, jointly developed approach for enhanced usability in controlling pharmaceutical and biopharmaceutical production processes on the shop floor.

Systec & Solutions and Werum offer a new integrated MES/ HMI solution for enhanced usability on the shop floor



Rüdiger Schlierenkämper, Werum IT Solutions, and Andreas König, Systec & Solutions, present a new approach for enhanced usability on the shop floor. (Image Rights: Systec & Solutions GmbH)

Customers who want to introduce Werum's PAS-X MES solution will now also have access to a range of specifically tailored Systec & Solutions HMI hardware. "Such compatible components allow for a more reliable and accelerated MES introduction, giving customers a clear advantage over third-party components that require various adjustments and tests to work together optimally," says Rüdiger Schlierenkämper, CEO, Werum IT Solutions GmbH. "Our objective is to simplify the automation of production processes for our pharma customers while providing them with standard solutions for ergonomic and safe operation by design."

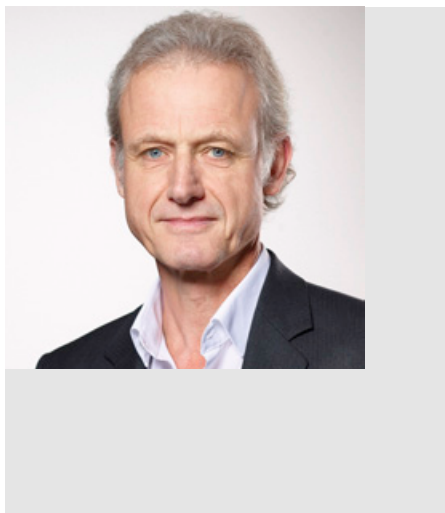
"Another advantage for Systec & Solutions and Werum customers," adds Andreas König, Managing Director at Systec & Solutions GmbH, "is that the Systec & Solutions HMI hardware has pre-configured components with additional functions such as hardware buttons to switch between different PAS-X applications. This will help make the work of shop floor operators more reliable, as well as faster and easier." The mobile stainless steel trolleys of Systec & Solutions are battery-powered so that the HMI can be used together with the PAS-X MES software wherever required by the process.

The development of effective joint solutions is based on the long-term pharma and biotech experience of both Systec & Solutions and Werum. "Customers who want to use the Systec & Solutions hardware while also operating the PAS-X MES can be assured of a fine-tuned

and perfectly compatible solution," says Schlierenkämper. Adds König, "By combining the innovative power of two premium suppliers, we are well positioned to boost forward-looking improvements for our customers, and look forward to continuing our work together to develop new ideas for pharmaceutical and biopharmaceutical production."




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Dear readers, dear subscribers,

now it's July 2015 and we have a lot of interesting news and a lot of interesting events for your appointment calendar.

So the amount of the German and the international newsletters is constantly growing. We hope, we can give you with this information a good help for your daily work and your planning tasks.

Yours sincerely

Reinhold Schuster



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Prospects good thanks to high order intake

Bosch Packaging Technology growing faster than the market

- Sales in 2014 up by a nominal 6.3 percent to 1.18 billion euros
- Order intake around 11 percent higher than in 2013
- Connected industry and line competence constitute main growth drivers

Bosch Packaging Technology, a leading supplier of process and packaging solutions, remained on a growth path in 2014. The Bosch division's sales revenue for the fiscal year increased by 70 million euros to around 1.18 billion euros, which corresponds to a nominal growth rate of 6.3 percent. This once again places the manufacturer of special-purpose machinery above the industry average of 4 percent, according to Germany's VDMA industry association. Adjusted for currency effects the sales increased by 6.7 percent. The division's order intake reached the record level of 1.23 billion euros, which is around 11 percent higher than in 2013. At the end of 2014, Bosch Packaging Technology employed a total of 6,100 associates at more than 30 locations around the world, which represents a year-on-year increase of around 7.7 percent. Friedbert Klefenz, president of Bosch Packaging Technology, expects to see further substantial growth in sales revenue in 2015.

Overall positive outlook for 2015

"The results achieved in the first four months of the current fiscal year give us every reason to be optimistic. Our proximity to customers and markets has enabled us to obtain a higher volume of orders compared with the previous year. This serves as the basis to reach our defined sales targets," Klefenz said. The recent acquisition of Osgood Industries, a supplier of food packaging systems in the United States, and the establishment of a joint venture with Klenzaid, an Indian company specializing in processing, packaging, and cleanroom technology for the pharmaceutical industry, will be a contributory factor. The overall target is to grow significantly faster than the market, as Klefenz declared during a press conference at the Achema 2015 World Forum in Frankfurt.

Growth in Europe and North America, major projects in Central America

In 2014, Bosch Packaging Technology made moderate progress in the European market, and achieved high double-digit growth in North America. In the free trade zone created by the North American Free Trade Agreement (NAFTA), the company benefited first and foremost from substantial orders placed by its customers in the food industry. Business with manufacturers of pharmaceutical products is also moving forward, with increasing demand for machines for the production, filling, and packaging of pharmaceutical products. Sales have also been developing well in Africa and the Middle East, with revenues rising by a percentage in the mid-single-digit range.

2014 was a year of mixed sentiments as regards the development of Bosch Packaging Technology's business in Central and South America. On the one hand, the Pharma business unit reported a double-digit increase in sales to pharmaceutical companies in Central America, with further prospects for growth thanks to a major contract. This relates to a reference project in which Bosch designed, supplied, and installed special-purpose machines for an interlinked industry solution consisting of multiple production lines. Soon the customer's



Crucial for high yields: the process filters: To obtain high yields in the fluid bed module of the new GranuLean, Bosch has developed a new process filter.



New bioreactor for laboratory-scale development of active ingredients: The fully automated, stainless steel laboratory fermenter was developed for batches between 15 and 50 liters, and is delivered with completely equipped periphery.

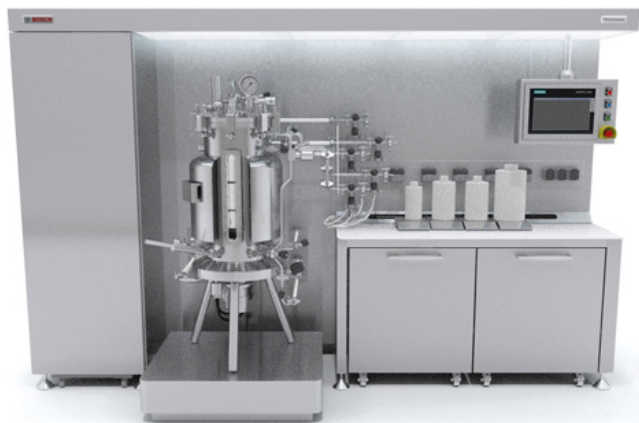
new, ultramodern factory will be capable of producing and packaging over 450 liquid and solid pharmaceuticals. On the other hand, sales to customers in the food industry in Central and South America were lower than in 2013. This result is mainly due to the depressed economic situation in these regions.

Exceptionally slow developments in Asia

In 2014, progress was unexpectedly weak in the markets of the Asia-Pacific region, where Bosch Packaging Technology reported lower sales than in 2013. Nonetheless, the outlook for 2015 is positive, not least because the company has developed high-quality products to suit local needs. These machines are competitive in terms of both costs and functionality compared with similar machines offered by Asian companies. As a result, the volume of new orders in China has

Bosch Packaging Technology growing faster than the market

picked up in the first quarter of 2015, despite the slower economy. Bosch recently strengthened the presence of its Packaging Technology division in India by acquiring a 49-percent equity share in the Indian company Klenzaid. "This investment represents an important step forward in our efforts to gain a stronger foothold in this region," Klefenz said. Klenzaid is best known as a manufacturer of cleanroom equipment for the pharmaceutical industry.



Sigpack LDF feedplacer enables seamless product handling and packaging: The new system from Bosch provides an integrated solution to pharmaceutical manufacturers to increase their productivity.

Strategy PA 2020: Expanding markets and business fields

The objective of the Bosch division's "Strategy PA 2020", presented last year, is to increase market share and expand the number of business areas. Although the growth regions of Asia did not develop as well as expected in 2014, Bosch Packaging Technology still aims to generate one third of its sales in this region by the year 2020. At present, Asia accounts for 23 percent of total sales. The company also aims to expand its business in Africa, Latin America, and the Middle East. The Bosch division currently has a presence in four countries on the African continent: Egypt, Nigeria, Kenya, and South Africa. In Europe, which is still the division's largest market, accounting for 43 percent of total sales, and in North America, which currently accounts for 25 percent of total sales, the company aims to grow faster than the market.

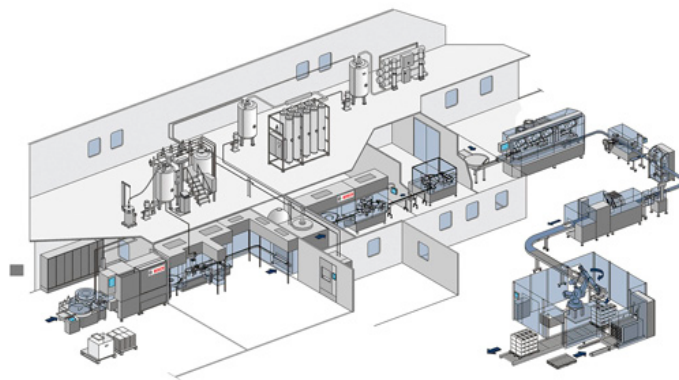
"In 2014, the two business units Pharma and Food generated roughly equal sales levels. We intend to keep things this way, with sales equally divided between the two units. They both offer great potential for growth. Within the food sector, our primary objective is to significantly increase sales of process and packaging technology for liquid food between now and 2020," Klefenz said. Another area with considerable potential is the market for so-called consumables. One example in the field of food packaging is the use of aroma protection valves to preserve the full flavor of coffee. These valves allow gases to escape from the packaging without letting any oxygen in. In the field of packaging for pharmaceuticals, the application of single-use systems in filling machines for highly potent medicines enhances customer benefit, because they prevent the loss of active ingredients, reduce costs, and shorten processing times.

Connected industry and line competence

"Across all business units, connected industry and line competence are our two major growth drivers," Klefenz declared. By interconnecting different stages of the manufacturing process on a broad scale, it becomes possible to optimize the integration of all links in the value chain and to assure and enhance the operating efficiency

of the machines and the quality of the products. This gives rise to the associated benefit of greater production flexibility, for instance by enabling a wider range of products to be manufactured on a single production line. At the same time, the concept of connected industry is the key to improved service. For Bosch Packaging Technology, this means for example that it can provide prompt, efficient support to its customers via the Remote Service Portal. A secure data link is used to transmit the necessary data between the customer's machines and the Bosch Remote Service Center.

Line competence means widening the focus from a single machine to the entire production line – enabling aspects such as material flow logistics and all upstream and downstream process steps to be taken into account. Bosch has already implemented many different projects based on integrated process and packaging lines, for example in Russia, North Africa, and the Americas. The lines in question handle both liquid and solid pharmaceuticals.



Focus on line competence: At Achema 2015, Bosch Packaging Technology showcased exemplary line concepts for the production, processing and packaging of pharmaceuticals for different therapeutic areas.

Packaging technology for a better quality of life

The Bosch exhibit at Achema 2015 (Hall 3, Booth C71) features five line solutions for the processing and packaging of therapeutic drugs used to treat patients suffering from diseases such as cancer and diabetes. "The message we wish to transmit to our customers, who have already invested years of effort to develop their pharmaceutical products, is that we always have their interests at heart when we design such complete solutions," Klefenz said. He added, "It is and remains one of our key objectives to preserve the quality of medicinal products and thereby improve peoples' quality of life. Innovative packaging technologies are one way of ensuring that drugs are delivered safely and without contamination, and that they can be administered as simply as possible."



BOSCH
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Pharmaceutical packaging „Made by Pöppelmann“



Storage container for Bullrich salts with pre-assembled bottom compartment and tamper-evident closure.

As the leading German manufacturer of high-quality plastic products, Pöppelmann GmbH & Co KG brings innovations regularly on the market. In addition to its extensive standard range, the company from Lohne constantly works on customer-specific projects in many fields – including the pharmaceutical packaging sector.

The Pöppelmann FAMAC business division develops and manufactures technical functional parts and modern packaging for the pharmaceutical, food and medical industries. What makes this so special: from the first idea to production, at Pöppelmann everything happens under one roof. In its own premises, Pöppelmann has developed high-quality plastic parts with special features such as a cap with tamper-evident closure for a nose spray atomizer and a Bullrich salt storage container with pre-assembled bottom compartment and tamper-evident closure according to customer requirements.

Pöppelmann has everything under one roof

Pöppelmann FAMAC offers short development times thanks to computer-based development and construction tools. Rapid Prototyping and in-house 3D printing transform objects that were constructed via CAD systems into something „tangible“ within a few hours. Upon close coordination with the customer and after completing functional tests and carrying out final correcting touches, in-house mould making for serial production begins.

Clean production at Pöppelmann FAMAC

At Pöppelmann FAMAC, the production, order picking and packaging of plastic articles such as the nose spray atomizer cap and the Bullrich salt container take place under cleanroom conditions pursuant to DIN EN ISO class 7, GMP Standard-C. Moreover, the Pöppelmann FAMAC business division has been certified by an independent institute for the introduction and application of a quality management system pursuant to DIN EN ISO 9001:2008 and DIN EN ISO 13485:2010 together with an HACCP hygiene management system. Thus, customers in more than 90 countries can rely on the „Made by Pöppelmann“ quality.

On 11 November, about 200 guests attended the German Packaging Award held by the German Packaging Institute (dvi) during the BrauBeviale in Nuremberg. From 230 entries, the independent expert jury had selected winners in six categories. One of the 2014 winners of this international cross-industry and cross-material competition: the foop by Pöppelmann FAMAC. The innovative folding cutlery for ready-made snacks won the coveted award in the category „Sales packaging – food and pet food“.

„At Pöppelmann, we are of course extremely delighted with the award,“ says Engelbert Rechten, Sales Manager at Pöppelmann FAMAC®. „In May’s launch at the Interpack, our new product had already received an overwhelmingly positive feedback. To our team, the awarding of the German Packaging



Following a customer request, Pöppelmann has developed a cap for nose spray atomizers.

Award proves that they have developed an innovative solution which provides real added value to our consumers.“

With the development of the „foop“, Pöppelmann FAMAC has designed a piece of cutlery that fits into a standard 95 mm diameter round lid and thanks to its actual length of 125 mm, it is also very comfortable to handle. What has made this possible is the innovative fold design of the plastic cutlery. Disposable cutlery that comes with ready-made meals and snacks tends to have a very short handle, making it difficult to hold. Often, you also touch the food with your fingers. However, thanks to its bridged folding, Pöppelmann cutlery fits into standard 95 mm lids and is still comfortable to handle. Just take it out of the lid, press both halves of the handle together until they engage—and your fork or spoon is ready with an actual length of 125 mm. This ready-to-use cutlery excels at high stability in all directions while being long enough for easily and neatly reaching the bottom of the container.

The cutlery is hygienically and safely integrated inside the lid, eliminating the need for elaborately attached and packaged external cutlery. With lid and cutlery being pre-assembled at Pöppelmann FAMAC, no additional effort is required during the filling process. As a further incentive to buy, the end user will see the cutlery directly through the lid. The intuitive functional principle can be easily adapted to other types of cutlery—spoons, knives, dessert forks, ice-cream spoons, etc. and can be used universally for a large variety of take away products and solutions.

Pöppelmann GmbH & Co. KG
D 49378 Lohne

WEMO Headquarter, Sweden



WEMO and HAHN expand and merge robot business

On 25 May 2015 the business segments linear robots, grip systems, conveyor belts and safety systems of HAHN Automation Components GmbH of Reinheim will merge with WEMO Automation AB Värnamo of Sweden and will in future be known under the name WEMO Automation GmbH.

Both WEMO and HAHN build linear robots for the plastics industry and automation applications for injection molding machines made by various manufacturers.

While HAHN's product range focuses on automotive and technical components, WEMO's strength and core competence involves technical components, the electrical industry and the packaging industry. Both enterprises therefore complement each other perfectly as a joint cross-application partner for the plastics industry.

The merger will be followed by more intensive activities in the German market and by setting the course for further growth.

A joint "Technical Centre" for Germany will be set up in Reinheim, with the common goal being to intensify and advance support and service in automation applications. Operating at a high level of competence in automation, this service will increase the added value in the customers' productivity and efficiency.

In future, all product lines will be fitted with the same hardware and software. There are also plans for new joint products based on common specialist skills and competences. System and full-range solutions integrating other components are as much in focus as the automated removal of plastic components and the subsequent placing on conveyor systems or packaging in boxes and crates. The program of linear robots now



Merging of WEMO Automation AB & HAHN Automation Components GmbH. From left: Frank Konrad (HAHN), Bengt Ståhl (WEMO), Thomas Hähn (HAHN), Sven Ståhl (WEMO), Marco Unverzagt (HAHN), Olof Ståhl (WEMO).

ranges from 1.5 kg to 100 kg load-bearing capacity.

WEMO Automation AB was established 1987 and today has a new and highly effective and efficient plant for development and production in Sweden and in India. The company also has a global and comprehensive network of sales and service partners.

HAHN Automation GmbH was established in 1992. The core business at the company's headquarters in Rheinböllen is the automation of assembly and test systems. The linear robot segment for the plastics industry began in 2007 with the acquisition of Remak in Reinheim and eventually developed further as system integrator. It

is this core competence which now merges with WEMO Automation AB of Sweden and will evolve into a permanent and self-contained unit within the HAHN Automation Group.

The new company operating under the name WEMO Automation Group employs a total of 90 people at its production locations in Sweden, Germany and India and builds more than 400 robots every year. The entire group expects sales of 20 million Euros for the incomplete financial year 2015.

WEMO Automation AB
CH 33144 Värnamo

En el simposio de junio de 2015, ENGEL presentará su robot multieje ENGEL easix en una nueva dimensión. Con los nuevos modelos ya es posible automatizar mediante una solución ENGEL convencional con robot multieje incluso las máquinas más grandes de moldeo por inyección con fuerzas de cierre de hasta 55000 kN.

La exitosa serie ENGEL easix, ampliada

Los nuevos robots ENGEL easix de gran tamaño amplían la oferta de robots industriales para el uso en plantas de maquinaria grande. Con un alcance de hasta 3900 mm y una capacidad de carga que alcanza los 240 kg, los robots se pueden utilizar para la fabricación de, p. ej., parachoques, salpicaderos y contenedores de basura. Nuestro socio colaborador para la ampliación de la serie es Kuka Roboter, con sede en Augsburg.

Para los modelos más pequeños, ENGEL continúa su exitosa colaboración con Stäubli Robotics, en Bayreuth. Desde su introducción en el mercado en 2010, los robots ENGEL easix se han consolidado perfectamente en las aplicaciones más diversas —incluso en salas limpias—.

Lógica de funcionamiento uniforme, para mayor confort, seguridad y eficiencia

El control de los robots ENGEL easix está completa y perfectamente integrado en el control de las máquinas ENGEL de moldeo por inyección, y precisamente ahí radica la fortaleza de esta solución de ENGEL. El transformador de plásticos se beneficia de disponer de una misma lógica para la máquina de moldeo por inyección y la automatización. Para el control, no hay diferencia entre accionar los ejes x, y, z de los robots lineales ENGEL viper o los seis ejes de giro de los robots industriales ENGEL easix. Los comandos adicionales de desplazamiento para los robots multieje se integran perfectamente en la interfaz gráfica del sistema de control, lo que simplifica significativamente el manejo de dichos robots. Para poder permitir una parametrización rápida a pesar de la complejidad del sistema global, el sistema de control ofrece al usuario diversos niveles de uso, que van desde la representación simplificada hasta la representación gráfica completa del proceso, orientada a objetos. El usuario de la máquina puede resolver por sí mismo muchas tareas para las cuales tradicionalmente era necesario contar con la ayuda de un programador, por ejemplo, la sincronización de los movimientos del robot con los expulsores. Como consecuencia de ello, aumentan tanto la productividad como la disponibilidad de la célula de fabricación. Sin mencionar las ventajas que suponen una mayor seguridad del proceso y una eficiencia de fabricación más elevada. No solo las máquinas y los robots se funden en una unidad, sino también los periféricos, como los sistemas de alimentación de material, las células láser o los sistemas de visión. De esta forma, todos los componentes de la célula de fabricación acceden a una base de datos compartida y pueden sincronizar automáticamente sus movimientos y sus lazos de control de manera que se consiga la máxima eficiencia global.

Si la célula de fabricación se suministra como una solución de sistema integrada, ENGEL también se responsabiliza de los periféricos y se ocupa de la certificación CE del sistema completo. Desde el primer momento, el cliente dispone de un interlocutor único, lo que simplifica la fase de diseño y el servicio postventa, y resulta en una puesta en servicio más rápida.



Los nuevos robots ENGEL easix de gran tamaño amplían la oferta de robots industriales para el uso en plantas de maquinaria grande. (Imagen: ENGEL)

ENGEL AUSTRIA GmbH A 4311 Schwertberg

Connect 2 Cleanrooms regional office is officially up and running

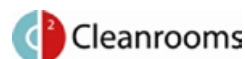


In order to become more accessible and provide the highest level of customer service, Connect 2 Cleanrooms and cleanroomshop.com have opened a new regional office. With a full and diverse team now located at Caswell Science & Technology Park, Towcester, Northamptonshire, NN12 8EQ, they will be at hand to facilitate any of their clients' requirements.

During a site visit the friendly team will be more than happy to discuss their clients' options, perform a site survey and help their customer get the best support for their cleanroom needs.

Of course, the doors at the head office in Halton, Lancaster, are also always open for a quick brew or a complete tour of the offices and three fully functioning showrooms.

Get in touch with Connect 2 Cleanrooms' regional office team on +44(0)1327 317646, the head office team on +44(0)1524 819899, email or join them on live chat.



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H+E presents optimised AOP procedure

Reduced ozone input lowers operating costs

Hager + Elsässer (H+E), one of the leading solution suppliers worldwide for holistic water management systems, draws on over 20 years of experience with the Advanced Oxidation Process (AOP). Here, the cleaning of difficult waste water takes place by oxidation with strong oxidisers like ozone or peroxide and an optional biological cleaning stage. At the Achema 2015, H+E will be presenting an improved AOP procedure that lowers the operating costs by reducing the energy input and the specific share of ozone used, and is at the same time more environmentally friendly than conventional systems. This is achieved by a multistage low-pressure process of the ozone input and optimised process operation, in combination with a biological stage.



Inlet and Distribution to BIOFIT®.F

Legal specifications on pollution levels in waste water are increasingly putting the productive industry, but also municipalities under pressure. Whereas the limiting values for materials contained in waste water have been reduced continuously, industrial companies want to produce with less and less water, which in turn results in higher concentrations of persistent substances. These developments particularly affect the paper and cellulose industry as well as petrochemicals. These sectors release highly persistent substances, which cannot be degraded biologically without further measures. With the Advanced Oxidation Process (AOP), persistent substances, the so-called hard COD (chemical oxygen demand) are oxidised by the use of ozone. As distinct from other providers that rely on an AOP process with full chemical oxidation or alternatively on an adsorptive or precipitative method with very high residual material quantities in each case, H+E uses a combination of chemical and biological processes.

Here, the contents are cracked in a first stage with reduced energy and oxidiser input, just enough to make them accessible to biological degradation. The persistent, hard-

to-remove substances include molecular rings or double bonds. The structures must therefore be opened and converted into short chain molecules. Here, H+E uses multistage low pressure feed systems that are characterised by a low energy requirements and are simultaneously regulated in such a way as to minimise the ozone requirements. The efficient input of chemicals is supported by a system creating the largest possible surface area renewal in the reaction zone, combined with low energy input. As a result, and with the regulated ozone input and corresponding short residence times, the limitation of the reaction to the breaking open of the double bonds is achieved.

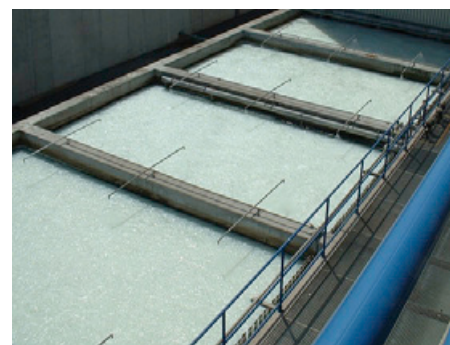
The fragments resulting from this process can then be economically degraded biologically in a second stage. With a biological filtration, the BIOFIT®.F process from H+E, the fragmented materials are eliminated; what remains is carbon dioxide (CO₂) and water as well as very little biomass.

As an alternative, the cracked waste water can be fed back into an upstream biological system where it is also cleaned.

In total, the AOP process from H+E GmbH more than halves the energy and ozo-



Oxygen reuse in a large paper industry project, in which Hager + Elsässer implemented their new AOP process.



BIOFIT F bio filtration for additional water purification in a large paper industry project, in which Hager + Elsässer implemented their new AOP process.

ne requirements.

Moreover, the production of ozone from pure oxygen and energy results in a large quantity of remaining oxygen. Under particular catalytic boundary conditions, this supports the direct oxidation process. In any case, this is also used for the supply of oxygen to the biological process, thereby also raising the overall economic performance of the process.

Since this reduces the production of ozone-oxygen mixture, the operating costs and the environmental emissions of the process decrease. In long-term scenarios, despite higher investment costs, the process developed by H+E is lower in overall costs than other AOP processes.

Hager + Elsässer
D 70565 Stuttgart

Electron Microscopy Sample Preparation Business Proves Environmental Commitment

Leica Microsystems' Vienna Plant Certified for DIN EN ISO 14001



Leica Microsystems' EM sample preparation business in Vienna obtained the DIN EN ISO 14001 certification for environmental management – the image shows the Vienna team in front of the building.

Leica Microsystems GmbH, Vienna, obtained the DIN EN ISO 14001 certification for Environmental Management. The certification refers to Leica Microsystems' Vienna plant, home to the Electron Microscopy (EM) Sample Preparation business of the global technology company. The certification process was started last September and involved transferring the existing, local Quality Management System into an Integrated Management System as required by ISO 14001.

Mario Molitor, Quality & Environmental Manager RA/QA with Leica Microsystems, says: "At Leica Microsystems, we are dedicated to environmental protection." As a Danaher company, Leica Microsystems follows

the Danaher policy for environment, health, and safety, and adheres to or exceeds local laws and regulations. "Another motivation to apply for the certification is that ISO 14001 is often a prerequisite for tenders. The certification is visible proof for our commitment to environmental standards."

Leica Microsystems' EM Sample Preparation business focuses on workflow solutions for a broad range of applications in life science research as well as in materials science. Samples for EM imaging are especially delicate and therefore need to be handled with great care to ensure no damage is incurred in the preparation process. "All instruments we offer are developed to integrate seamlessly, so that the workflow runs smoothly. Our

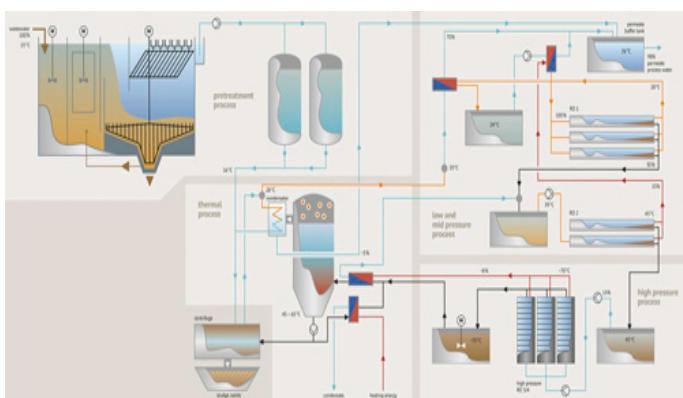
team of product managers and application experts works closely together to ensure one instrument best matches the other," says Ian Lamswood, Marketing Director with Leica Microsystems. The most recently launched product is a system for correlative light and electron microscopy (CLEM). Before observing a sample in the EM, it gives users a quick overview under the fluorescence microscope and provides deeper insights by correlating both fluorescence and electron microscope images. The system keeps samples at cryo conditions of -195° centigrade.

Leica Microsystems GmbH
D 35578 Wetzlar

HAGER + ELSÄSSER presents new concept for the production totally free of waste water

Innovative ZLD Hybrid System for maximum cost efficiency

The model for production totally free of waste water - zero liquid discharge (ZLD) - is increasingly being applied in a wide variety of industries. Instead of discharging water which is as clean as possible, the aim in future is for production processes to discharge no water at all. Together with its affiliate Membran Filtrations Technik (MFT), Hager + Elsässer (H+E) has now developed a new ZLD process which uses a series of innovative filtration and separation technologies, including three reverse osmosis stages to reduce the subsequent evaporation of residual waste products to a minimum.



The new ZLD.eco process from Hager + Elsässer and its affiliate MFT can significantly reduce the energy requirement as a result of the sharply reduced evaporation stage.

Around 400 ZLD plants are already in operation around the world. The underlying aims and motives differ from region to region. For example, in areas of low rainfall such as the South of France the prime need is independence from the local water supply, whereas in Germany ever more stringent environmental stipulations have been imposed, such as on salt loads in waste water. In countries such as India, or regions like South America there are frequently no effluent treatment plants so that ZLD take on these functions. On the other hand, companies in European countries use ZLD processes for post-processing in the actual effluent treatment system.

Previously, the considerable investment and operating costs have discouraged the use of the technology. In particular, the aspect of high energy requirements played a role here.

Hager + Elsässer, one of the world's leading solution suppliers in the field of holistic water management, has now teamed up with its affiliated company MFT (Membran-Filtrations-Technik) to develop a new ZLD process that significantly reduces energy requirements by sharply minimising the evaporation stage: ZLD.eco.

High-pressure membrane stage with the circular disc module

At the heart of the system is a new high-pressure reverse osmosis stage. This involves a pre-treatment process, which can either be chemically-physically or biological depending on the user, and an ultra-filtration stage to filter out residual organic material followed by multi-stage membrane technology designed to concentrate non-organic waste material more densely. After the first two reverse osmosis stages entailing pressures of up to 80 bar, the residual concentrate contains around 20% of the total waste water volume. This is then



Example of an evaporation unit forming part of a ZLD process.

subjected to a further reverse osmosis stage. In this third reverse osmosis stage, pressures of up to 200 bar are reached. This stage uses a special module developed by MFT known as the circular disc module (CD module). Unlike other modules using a meander flow pattern, the water takes a circular path through the CD module, thereby reducing pressure losses.

The high pressure warms the concentrate to approx. 70°C. This is then vaporised in the subsequent low pressure stage, which acts with the membrane technology to form a 'hybrid system', giving the concentrate a manageable consistency. The thermal energy is fed back into the system and used to increase energy efficiency. This significantly reduces the energy requirements of the entire system. The volume of waste products still present after the maximum pre-concentration produced by the high-pressure membrane technology is significantly lower than with conventional processes. As a result, the evaporation stage with ZLD.eco can be considerably shorter.

Compared with conventional systems without pre-concentration, ZLD.eco requires about 20% less energy. Also, since the evaporation system is smaller, less cooling energy is needed for the condensation process. These savings can amount to as much as 80%. Further savings can be achieved thanks to the modular construction of the system. The savings in terms of staffing are around 20%, while commissioning costs are also lower by 20%. And last but not least, the reduced consumption of chemicals consumption is an additional advantage. Thanks to savings on different levels, investments in ZLD.eco have a very short payback periods.

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Ecolab Contamination Control introduces new product labelling in response to CLP regulations

Ecolab Contamination Control, a worldwide provider of leading products and services for the control of microbial contamination in the cleanroom environment, has updated labels and documentation for its entire fluid product range. This is an important step to meet changes to industry regulations which came into force on 1 June 2015.

Ecolab notified their customers of this change in December to ensure compliance with the Classification Labelling and Packaging Regulation (CLP), a European regulation based on recommendations from the UN initiative, Global Harmonised System for classification (GHS), aimed at standardising hazard labelling worldwide. These requirements are imposed on EU manufacturers by the European Commission and the European Chemicals Agency (ECHA).

The Regulation states that from 1 June this year all products were legally required to display new hazard symbols developed under the CLP. From this date customers who purchase an un-supported or non-compliant product may be forced to make changes, or potentially cease production of their own products.

Although this means some hazard classifications will change and this will be clearly evident on the new labels as well as within updated Safety Data sheets and product certificates, Ecolab Contamination Control has



Ecolab Contamination Control has updated labels and documentation for its entire fluid product range to meet changes to industry regulations which came into force on 1 June 2015.

confirmed that it will not be altering any product formulations because of CLP. For this reason any changes only affect labelling and associated documentation.

James Tucker, marketing director at Ecolab Contamination Control says: 'The formulations of our products will remain exactly the same as before and there will be no change to the extremely high standards of production which conform to our Process Match assurance.

'Throughout the development and supply of our products we ensure that they are compliant with the latest guidance from regulatory bodies such as the European Chemicals Association which keeps us at the forefront of delivering contamination control without compromise.'

Ecolab Contamination Control is also taking this opportunity to update product

names to help indicate the active ingredients and to clarify key product features. This is being supported by the review of the product colour coding for operator's ease of use.

Mr Tucker says: 'Following consultation with our customers we are taking advantage of the changes forced upon us by CLP to introduce the new branding. This is aimed at giving added clarity and immediate recognition to our product range, making it easier for our customers to use them with total confidence.

'This also means we are prepared for the Biocidal Products Regulation in good time, ensuring our customers will not be faced with further labelling changes in the near future because of this.'

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gempex GmbH supports and sponsors 4th International Conference »Strategies in Tissue Engineering«

Advanced Therapies are promised to be one of the main pillars in the future of personalized medicine. Manufacturing and clinical evaluation of pharmaceutical products in this field, so called "Advanced Therapy Medicinal Products" (ATMPs), have to meet regulatory requirements of "Good Manufacturing Practices" (GMP) and "Good Clinical Practices" (GCP).

The professional consultancy enterprise gempex GmbH with core competences in this area sponsored and supported the 4th International Conference on "Strategies in Tissue Engineering" by organizing specific sessions on "ATMP Regulation" and "Future Perspectives in ATMP Regulation" which have focused exclusively on these topics.

Speakers provided views and experiences from regulatory authority, clinical trial management and industry. Keynotes were given by speakers from EMA/Paul-Ehrlich-Institute and the Hannover Clinical Trial Center of Hannover Medical School. More than 40 participants out of the approximately 400 attendees of the conference have taken part in the sessions which were followed by intensive discussions on the aspects of future ATMP regulation. Details of that will be crucial for successful development of new ATMP products in future years.

The conference which is organized by the "Würzburger Initiative Tissue Engineering e. V." takes place triennial in Würzburg and raises an excellent platform for discussion of

further development and future perspectives of the resulting challenges.

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Technology park facilities on offer at the company's headquarters in Gundersheim

Wammes & Partner strengthens the high tech location Rhineland-Palatinate, Germany

The technology company Wammes & Partner aims to create a technology park in Gundersheim near Worms for high tech companies in the field of applied physics. The company is settled there itself along with subsidiaries on a 20,000 square meter site with approximately 4,000 square meters of offices as well as functional and clean rooms. Now Wammes offers other companies units up to 1,000 square meters for rent. The aim is to locate companies at the same site to realize synergistic effects and joint projects. The site has direct access to the motorway A61 with a 40 minutes drive to Frankfurt Airport. Due to its central location within Germany, Gundersheim is also suited as a German office for internationally operating companies. A combination that makes it possible to be directly productive and optimizing costs at the same time - an advantage for start-ups and already established specialists.



Wammes & Partner offers vendor independent fault analysis to its customers along with technological consultancy and design optimization in electronic flat panel displays such as LCDs and their accessory devices such as touch systems, (back-)lighting, functional layers as well as photometric measurement and qualification services. The company is therefore seeking tenants for the planned technology park who deal with related high tech issues. The imaginable spec-

trum ranges from basic research on physical software development to verification activities and technical marketing.

„We know from our own experience that the major office buildings are often not suitable for technology companies. In our building we have realized the higher demands that the accommodation of clean rooms and laboratories makes on the architecture. Ideally, our tenants will not only benefit from the good infrastructure - including good

logistical connectivity and even a hydraulic ramp for large samples up to 3,000 kilos. They will also profit by a mutual fertilization between the local partners. Be it because a tenant needs the services that are already supplied at the site, or because several neighbors can work together on a joint project for the same customer“, explains Klaus Wammes, CEO of Wammes & Partner GmbH.

Wammes & Partner GmbH D 67598 Gundersheim

Arburg's US subsidiary had two good reasons to celebrate on 16 and 17 June 2015: Together with 245 customers and guests, the company marked the 25th anniversary of Arburg Inc. and also officially inaugurated the new premises for the US headquarters in Rocky Hill, Connecticut. A high-ranking delegation from the parent company was on hand to join in the celebrations in the person of Managing Partner Michael Hehl, as well as Managing Directors Heinz Gaub (Technology & Engineering) and Helmut Heinson (Sales).

25 years of Arburg in the USA

- Official inauguration of new building with Partners, Management Team and customers
- Arburg success story in the US
- Expansion in the turnkey sector and entry into additive manufacturing



On 16 June 2015, Arburg Managing Partner Michael Hehl (middle) opened the new US headquarters in Rocky Hill jointly with Managing Director Helmut Heinson, subsidiary manager Friedrich Kanz, SPI President and CEO William R. Carteaux and Managing Director Heinz Gaub (from left). (Photo: ARBURG/Yardis)

As part of the opening ceremony, Michael Hehl, Managing Partner and Spokesperson for the Arburg Management Team, offered congratulations on behalf of the entire parent company: „North America is Arburg's largest foreign market, in which we have installed more than 12,000 machines. Our new headquarters in Rocky Hill represents a further milestone in our success story in the US. In addition to the Arburg Inc. subsidiary founded in the US in 1990, we are also represented in North America with the Arburg Technology Centers in California (1993) and the Midwest (2007).“ In this context, Michael Hehl expressed his thanks to the company's customers for the trust they have placed in the family-run company and for the successful cooperation. In recognition of the American team's great commitment over the past 25 years, the Managing Partner presented a commemorative sculpture and certificate to Friedrich Kanz, Managing Director of Arburg Inc. „Our new US headquarters, our infrastructure and our highly motivated team of experts will enable us to further intensify our collaboration with our customers,“ said Friedrich Kanz, adding: „We are perfectly positioned to enjoy another 25 successful years in the US.“

Representing the US plastics industry, William (Bill) R. Carteaux, CEO and President of the SPI industry association, gave a keynote address in which he offered detailed insights into the contribution made by the SPI and the plastics processing industry to the US economy.

New 2,500 square metre US headquarters

The new Arburg building covers a total floorspace of 2,500 square metres (27,000 square feet) and boasts state-of-the-art infrastructure. The centrepiece of the new building is the showroom, which has sufficient space for seven Allrounder injection moulding machines that can be used for testing and training purposes, for example. There is also plenty of space for setting up and dismantling complete turnkey systems, which are experiencing rapid growth in demand in the US. The building also features a comprehensive spare parts store, a machine store as well as a special area for the Freeformer. This industrial additive manufacturing system has been available in the US since its launch at the NPE trade fair in March 2015.

The anniversary event offered customers plenty of opportunities to see for themselves the extensive facilities available for them at



To mark the 25th anniversary of Arburg Inc., Managing Partner Michael Hehl (right) presented the Arburg commemorative sculpture to subsidiary manager Friedrich Kanz on 16 June 2015. (Photo: ARBURG/Yardis)

the new location in Rocky Hill. Over the two days, a total of 245 guests learned about the latest trends during presentations and live demonstrations involving the exhibits. There was a great deal of interest in industrial additive manufacturing with the Freeformer, automated production cells, as well as the presentation by Managing Director Technology & Engineering, Heinz Gaub on „Innovative Lightweight Construction Processes“.

Successful in the US for 25 years

Arburg Inc. is one of the German machine manufacturer's first subsidiaries and was established in 1990 as part of the effort to expand international sales activities.

To ensure regional support nationwide, Arburg has established two Technology Centers in Elgin, Illinois, and Irvine, California, for its customers in the Midwest and on the West Coast respectively, in addition to its location in Rocky Hill, Connecticut. A total of around 75 Arburg employees provide comprehensive support in the USA.

Arburg is represented by its own organisations at 32 locations in 24 countries and by trading partners in more than 50 countries. From a total of some 2,400 employees, around 2,000 work in Germany. About 400 further employees work in Arburg's organisations around the world.

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Cherwell aids additional training opportunities for cleanroom biodecontamination

Reducing risk from bacterial endospores in aseptic preparation supported by Cherwell

Cherwell Laboratories, specialist providers of products for process validation and environmental monitoring, have highlighted their ongoing support for the education and training of staff in aseptic production facilities – particularly given current focus on reducing risk from bacterial endospores in aseptic preparation. Summer 2015 will provide several opportunities for the discussion of new MHRA guidelines for Specials Manufacturers, [1] regarding the development of best practice for the transfer disinfection process and potential alternatives.

Cherwell Laboratories will be attending two events spotlighting these new guidelines in July. On the 1st July Pharmig present Sporicides – As Part Of Your Transfer Process. This one day course will be run in Solihull in conjunction with the NHS and is aimed at staff that monitor, run or work in an aseptic facility. The annual 4-day CPD accredited course Aseptic Preparation and Dispensing of Medicines (APDM), starts on the 6th July. Organised jointly by the NHS, Technical Specialist Education and Training (TSET) and the University of Leeds, the course is designed to extend the knowledge of personnel working in licensed and unlicensed aseptic units.

At both of these events Cherwell Laboratories will be on hand with experts to discuss environmental monitoring, sporicidal disinfection, and process validation. Cherwell's exhibition stand will present some of the tools and materials on offer including Redipor® prepared media, SAS microbial air samplers, Mar Cor Dry Fog microbial decontamination and Mar Cor sporicidal disinfectants.

Andrew Barrow, Sales Manager, Cherwell Laboratories, who will be attending the events, commented, "Aseptic production in NHS pharmacies is critical to patient safety and a key focus area for Cherwell.



Cleanroom Biodecontamination explained

The autumn conference season will almost certainly also feature discussion of this critical area and we at Cherwell Laboratories will continue to support and contribute wherever it is appropriate."

Reference:

1. MHRA Guidance for Specials manufacturers (Section 3.5.20), January 2015. Medicines and Healthcare Products Regulations Agency (MHRA).

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600th employee hired

RAUMEDIC is growing

The plastics company is pleased to be able to welcome its 600th employee. Michael Künzel joined the medical technology company in April as a development engineer in the assembly/catheters division as the 600th employee.

Until recently, the native of Upper Franconia had been working far away, and he is happy to have found a job at RAUMEDIC near where he is from. Working in an interesting field of activity is important to the mechanical engineer. Versatility is always on the agenda at this plastics processing company, since all product development is customer-specific. And that is exactly what the young engineer likes. He does not just want to be a desk jockey – he likes to tinker and he also lends a hand. And that is what is expected of him as an application engineer at RAUMEDIC in the interface between glo-

bal distribution, marketing, and sales on the one hand and production in Helmbrechts on the other. He will get an intensive introduction to all areas in order to learn about the development and production processes of plastics products from the bottom up.

It is important to Christina Hechtfisher, personnel manager, that all new employees receive good training. „The experienced colleagues from production train the new employees at the machines so they get a feel for the special features of manufacturing products for the medical technology and pharmaceutical industry.“

RAUMEDIC is growing and growing: „In 2015 alone we hired 42 new employees in a wide variety of areas in the company worldwide,“ says Walter Reingruber, human resources manager responsible for all RAUMEDIC plants in Germany. Michael Künzel and his



Vorstand Martin Bayer, 600. Mitarbeiter Michael Künzel, Bereichsleiterin Anwendungstechnik Assembly/Catheters Christine Schleicher, Personalmanager Walter Reingruber, Personalchefin Christina Hechtfisher

colleagues will move into their work places at the new plant in a short time. Then there will finally be room for the many new hires planned this year. RAUMEDIC is currently seeking 30 new employees in various areas: experienced professionals, career changers, trainees, and apprenticeship students.

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Higher yields and flexible design

From R&D to high production volumes: Bosch presented the new Manesty TPR tablet press range



- TPR 200 and 700 add to TPR 500 for new range of tablet presses for small to high production volumes
- Designed to maximize Overall Equipment Effectiveness (OEE)
- Patented integrated die plate improves output by up to 40 percent



New Manesty TPR tablet press range: All three machines of the Manesty TPR tablet press range have been developed to significantly improve Overall Equipment Effectiveness (OEE) in terms of availability, quality and output.

**11th - 15th June 2018: ACHEMA 2018,
Frankfurt am Main (D)**

At Achema 2015, Bosch Packaging Technology showcased the new range of Manesty TPR tablet presses. Following the introduction of the versatile TPR 500 at last year's Interpack in Germany, Bosch has now added the TPR 200 for small to medium batches and the TPR 700 for high production volumes to its line-up. Designed to improve Overall Equipment Effectiveness (OEE), all three machines offer an integrated die option, modular powder feeding system and an easy-to-operate Human Machine Interface (HMI). "The successful launch of the TPR 500 confirms that the new range offers exactly what pharmaceutical manufacturers require," says John Murphy, product manager at Bosch Packaging Technology Ltd. in Knowsley, UK. "Based on their feedback, we have now developed two further models

to meet the industry's demands for high yields as well as flexible and efficient production."

Three machines for different batch sizes

The TPR 500, which was launched at Interpack 2014 in Dusseldorf, Germany, can produce more than 400,000 tablets per hour, using standard tooling on a small footprint. It is particularly suited for MUPS (multiple unit pellet system) products without any additional equipment. "This also demonstrates Bosch's line competence, as the pellets can be made on a Hüttlin system and then either enclosed in capsules or pressed as tablets," Murphy explains.

The new TPR 200 is designed for small to medium batches with outputs of up to 230,000 tablets per hour. "With the TPR 200, we offer customers an economic machine with a hygienic easy-to-clean design and compact footprint," Murphy says. "Its modular data acquisition system makes it the ideal platform for the development

From R&D to high production volumes: Bosch presented the new Manesty TPR tablet press range



Easy conversion into bi-layer system: Both the TPR 200 and the TPR 700 can be quickly converted into a bi-layer version that ensures a clear demarcation between the different tablet layers, thus avoiding cross-contamination.

and evaluation of tableting formulations.” Its flexible design includes options for R&D configuration, containment applications, as well as bi-layer tablets. The latter is also available on the new double-sided TPR 700. Both tablet presses can be quickly converted into a bi-layer version that ensures a clear demarcation between the different tablet layers, thus avoiding cross-contamination.

As the largest tablet press of the series, the TPR 700 is capable of producing more than one million tablets per hour. It is suited for a wide range of compressible products including non-pharmaceutical materials such as vitamins. The length of the feeding system provides excellent weight consistency at high speeds. Due to its ergonomic design, both production and technical areas of the tablet press are easily accessible. Moreover, a unique two-level production zone ensures the complete segregation of production and technical areas even when removing the exchangeable turret.

High output and outstanding flexibility

All three tablet presses have been developed to significantly improve OEE in terms of availability, quality and output. Combined with an exchangeable turret, the patented integrated die plate offers increased flexibility, fast, safe and easy changeover, as well as reduced cleaning times. “Depending on the machine model and type of tablets, output capacities are improved by up to 40 percent,” explains Murphy. Furthermore, the „True Flow“ tablet discharge chute eliminates product damage by reducing mechanical stress with an optimized take-off angle for a smooth tablet delivery.

The TPR range also features an extendable powder feeding sys-

tem, which offers higher flexibility and production efficiency. The ergonomically designed two-paddle feeder can easily be upgraded to three paddles. The simple, precise and repeatable feeder set-up contributes to efficient production. A choice of rectangular or round paddle blades increases the range of materials that can be compressed.

Efficient and easy operation

The TPR range is easy to operate with a 21-inch HMI touchscreen and Windows 7 as the standard application system. Latest off-the-shelf Beckhoff controls ensure efficient operation as well as simple machine set-up. As part of a total productive maintenance plan, the latest wireless RFID (Radio Frequency Identification Device) technology enables operator log-in and identification at any time, thus significantly reducing the risk of operator errors.



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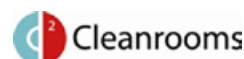
Top Safety Accreditation for Connect 2 Cleanrooms



Connect 2 Cleanrooms has been awarded accreditation from Safecontractor for their commitment to achieving excellence in health and safety. Safecontractor is a leading third party accreditation scheme which re-

cognises very high standards in health and safety management amongst UK contractors. Connect 2 Cleanrooms' application was driven by the need for a uniform standard across the business.

The team is thrilled to gain this accreditation and it will complement their CHAS accreditation and OHSAS 18001 for Health and Safety, to assure clients that Health & Safety is taken seriously and it is at the forefront of every decision the company makes.



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Modular platform MRA from Bosch

Fully automated assembly of up to 70 insulin pens per minute



- Development of improved MRA platform backed by cooperation with pen manufacturers
- Flexible and modular design suited for future upgrades
- Complete line integration including downstream labelling and end of line packaging

**11th - 15th June 2018: ACHEMA 2018,
Frankfurt am Main (D)**

At Achema, Bosch Packaging Technology showcased its latest version of the rotary pen assembly machine MRA. Developed by the Bosch subsidiary Moeller & Devicon, the machine is designed to assemble medical devices such as standard four-piece disposable pens or single-shot auto-injectors. These are used, for instance, for diabetes care, the treatment of autoimmune diseases, hormone replacement therapies or emergency medicine. "We introduced the MRA to the market at last year's Interpack in Germany. Since then, we have refined the technology by cooperating with several manufacturers of pens and auto-injectors, and have adapted the assembly processes for different models," Michael Andersen, sales director at Moeller & Devicon, explained. "This way we can offer customers the appropriate machine with the required features according to the pens or auto-injectors in use." Together with primary and secondary packaging solutions, the new MRA can be combined to complete lines.

Four pens at the same time

The MRA assembles the four components of each pen one step at a time: in-feed systems load the pen caps, cartridge holders, cartridges and dosing mechanisms into the machine from four different in-feed stations, and fit them together to ready-to-use pens. The fully-automated machine handles four pens at the same time and achieves an output of up to 70 pens per minute. Incorrectly assembled products are automatically detected and rejected.

Thanks to its open construction, the platform offers a good overview of all stations and processes, ensuring easy operation and format settings. The automatic transportation and control stations between the different assembly steps reduce operator intervention and manual handling to a minimum. A Human Machine Interface (HMI) enables operators to monitor all process functions precisely. The compact design and small footprint fully comply with GMP (Good Manufacturing Practice) and GAMP5 (Good Automated Manufacturing Practice).

Standard upstream and downstream options

As an option, the MRA platform can be combined with additional upstream and downstream equipment. For instance, the liquid pharmaceuticals can be filled into cartridges and inspected for particles and cosmetic container defects on other Bosch equipment. "What customers ask for most are additional downstream solutions," Michael Andersen explained. This includes labelling machines from Moeller & Devicon, which have been especially designed for pens and auto-injectors, as well as fully automated horizontal cartoning machines either from Bosch or third party suppliers, which can be combined



Four pens at the same time: The assembly machine MRA from Bosch reliably assembles the four components of disposable pens: pen caps, cartridge holders, cartridges and dosing mechanisms.

to complete lines. An integration of downstream case packing and palletizing equipment is also possible.

"The flexible and modular design of the MRA platform enables an upgrade with further process steps, such as laser engraving of the pens or serialization," Andersen underlined. Moreover, the platform can also be adapted for other medtec products, such as infusion sets, cannulas or catheters. The entire range of rotary pen assembly machines by Moeller & Devicon is complemented by manual, semi-automated and fully automated linear solutions for all customer requirements.

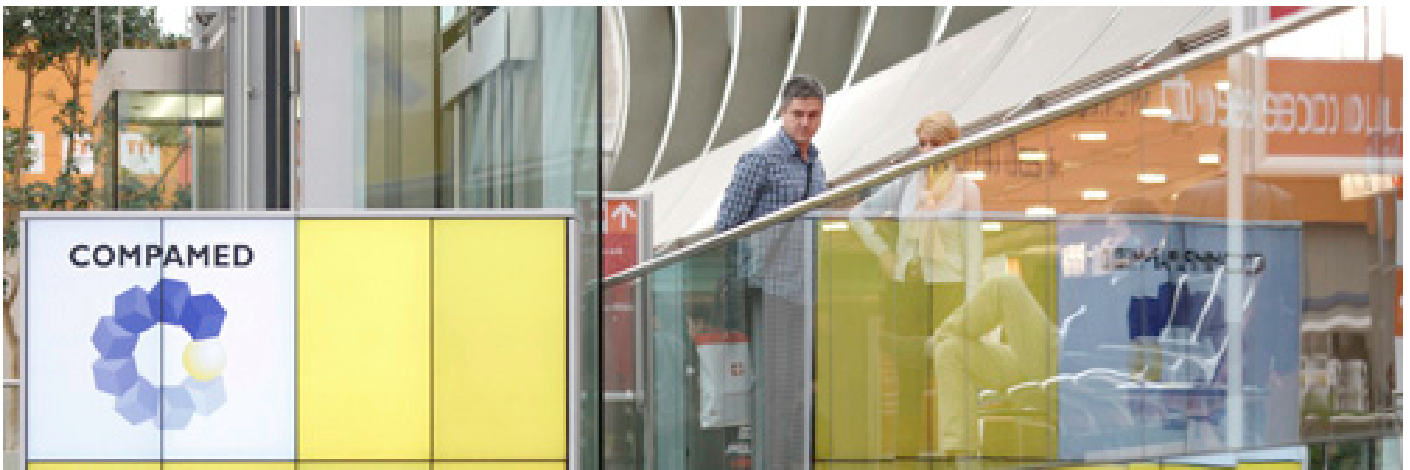


Pen assembly machine MRA: The MRA from Bosch is designed to assemble medical devices such as pens, which are used, for instance, for diabetes care.



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Light as a universal tool in the field of medicine technology

The 9th COMPAMED Spring Convention gives a little taste of the trend topics in the run-up to the COMPAMED 2015



Author: Klaus Jopp

16th - 19th November 2015: COMPAMED und MEDICA, Düsseldorf (D)

For many years, light has been an aid in the field of medicine that cannot be done without. Photonic procedures today in the fields of endoscopy, laser surgery, lab-on-a-chip systems, biomedical optical sensors, as well as other fields, are indispensable. Against this background, the 9th COMPAMED Spring Convention (7 May in Frankfurt am Main), which the Messe Düsseldorf has organised together with the microtechnology association, IVAM, took place this year under the motto “Glimmer of hope for medical technology – photonic applications for diagnosis and therapy procedures”, thereby giving a first outlook regarding the trends of the COMPAMED 2015 in Düsseldorf. With more than 700 exhibitors, for the first time, the internationally leading trade fair for medical technology suppliers is taking place completely parallel to the world’s largest medical trade fair, MEDICA 2015 (approx. 4,800 exhibitors), from 16 to 19 November. From now on, it will be held on the new days running from Monday to Thursday.

In particular, the fields of application of modern lasers are becoming ever more numerous. Lasers cut with a great deal more precision than any scalpel and they are additionally capable of fusing tissue together. This focused beam of light is also the tool of choice for removing stones in the body. In addition, lasers are superior to other technologies such as electrosurgery and sound-wave techniques, when it comes to cutting and removing soft tissue. Photonics have made particular progress in the case of minimally invasive operations. In addition, endoscopy entailing viewing into the body with specific instruments has been successfully implemented and continuously optimised for years. Thereby, the continual improvement of light sources, the guiding of light, and camera systems are decisive factors for being able to operate ever more gently, quicker and with an increasing level of precision.

In the field of medicine, there are also great hopes of being able

to see directly into a cell. This objective entails understanding and verifying biological processes at a molecular or cellular level. In doing this, it offers the chance to recognise and better diagnose diseases at an early stage, and provide more specific treatment for them – with a method for recognising cancer early on, among other things. In the meantime, with the fluorescence microscope developed by Max Planck researcher, Stefan Hell from Göttingen, resolution is so high that individual molecules are visible. For this groundbreaking work on the fluorescence microscope that provides super resolution, he received the Nobel Prize for Chemistry in 2014 together with his American colleagues, Eric Betzig and William Moerner – as well as a distinction in the field of medicine for “using light as tool”.

There is no question about it; biophotonics, laser applications and micro-optics are becoming increasingly more popular in the field of medicine because these methods are low in risk and patient-friendly. In his keynote speech at the COMPAMED Spring Convention, “Beyond White Light – new imaging modalities for optimising diagnosis and therapy in the field of minimally invasive surgery”, Thorsten Jürgens, the coordinator of technology development at Olympus Surgical Technologies Europe, reported on new imaging procedures that considerably improve possibilities within the scope of microsurgery. “With Narrow Band Imaging (NBI), it is, for example, possible to identify fine structures and capillary patterns on the surface of mucous membranes. Human tissue absorbs light used here at shorter wavelengths very good. NBI successfully makes use of this characteristic, thus providing additional information that cannot be retrieved by means of normal endoscopic images. A filter creates two 60-nanometre-wide spectrums within the wavelength range of 415 (blue light) and 540 nanometres (green light). The absorbing characteristics of haemoglobin improve the contrast of blood vessels. Due to the various penetration depths of the blue and green light, the anatomical layer where a blood vessel is running can be identified.

Photodynamic Diagnosis (PDD) is also very promising. This method provides in-vivo data that can identify special tumours and is

The 9th COMPAMED Spring Convention gives a little taste of the trend topics in the run-up to the COMPAMED 2015

already being used in the field of dermatology and urology. Initially, a photosensitizer is applied that is accumulated in or on the tumour cells. By exposing to light, the dyes fluoresce and the light which is emitted is then detected. Broadband Xenon light sources are used and a filter zeros in on the required wavelengths from their spectrum. In recent years, new and specific dyes have been developed. "NBI and PDD are already being regularly used in the field of clinical care." In the future, alternative dyes and colouring agents will make the precise demarcation of risk structures and disease possible," Thorsten Jürgens explained.

Functionalised nanorods for the early detection of cancer

The Austrian Institute of Technology in Vienna (AIT), the largest non-university research institute in Austria, has developed several photonic platforms. In this connection, the AIT is participating in the project, NAMDIATREAM (Nanotechnological Toolkits for Multi-Modal Disease Diagnostics and Treatment Monitoring) that is being financed by the EU and should contribute to the early detection of cancer based on nanotechnology. Possessing a patent for innovative immunodiagnosics, the AIT created functionalised core-shell nanorods that are very simple to use. "Readings can already be taken from a patient's saliva in an ambulance, the best medium for point-of-care applications," explained Dr. Giorgio C. Mutinati from AIT. The procedure is based on optical changes in the rotational dynamics of magnetic rods that have a magnetic core and a stainless-steel shell. Special molecules from the sample bind to the nanoparticles and by means of this process, alter their physical characteristics and this can be measured. The method has many advantages: Only small quantities of samples are required that are in no need of preparation. The management of "mixing and measuring" is simple and the time required for analysis is short.

Optical microsensors are increasingly becoming more popular in the field of medical technology. The research institute for microsensor technology, CiS, has developed an in-ear sensor that takes pulse and blood oxygen saturation readings in a non-invasive manner and can transmit the data to a recording device. The system for long-term monitoring of vital parameters consists of a miniaturised light source with dimensions of only 0.6 x 0.7 x 1.4 millimetres and laser-Doppler sensors. "The measurement principle is based on detecting a frequency shift when laser light is scattered by the components of blood due to the Doppler effect, with the frequency shift being reliant on the flow rate and direction," explained Dr. Hans-Georg Ortlev from CiS. By superimposing this on the original wave, interference effects within the measurable range of frequency occur at the detector. There are endeavours being made to establish a point of measurement at the entrance of the ear canal. The sensor should be integrated in an earmould so that the measuring unit can be worn like a hearing aid.

Hearing with light

Seeing thanks to light is normal, hearing by means of light is a new approach that the CSEM centre (Centre Suisse d'Electronique et de Microtechnique) located in Central Switzerland is pursuing. This is because light is not only being used in the field of diagnostics but also in the field of therapy. Up until now, cochlea implants have functioned via electrical stimulation that is, however, limited in many perspectives, such as poor spatial resolution, the so-called crosstalk, for example. With "optical acoustical" stimulation, the CSEM is participating in the EU project entitled ACTION (ACTIVE Implant for Opto-acoustic Natural sound enhancement). "The project should strengthen the level of hearing of severely hearing-impaired patients by eliminating constraints of spatial and temporal stimulation of cochlea

implants that are based on electrical stimulation," emphasized Dr. Stefan Mohrdiek from CSEM. ACTION builds on the discovery that pulsed infrared laser light is capable of triggering auditor activity in hair cells. The primary components of the optical microsystem include lasers providing optical stimulation, for which semiconductor laser diodes are favoured, response electrodes as well as connection elements with printed electronic circuits. There are still a lot of challenges to overcome until the implementation of such systems can be achieved. This includes a rigorous level of miniaturisation, sophisticated VCSEL lasers for long wavelengths, biocompatibility, the production of micro-lenses on a wafer basis as well as the possibility of manufacturing them in small batches.

Today, laser radiation is already being used intensively in order to achieve various therapeutic effects ranging from acupuncture to the vaporization of tissue all the way to the removal and disruption (e.g. skin, cartilage and stones). Furthermore, targeted laser beams are also being used in the field of photodynamic therapy and thermal coagulation. Particularly good effects can be achieved with processes that laterally separate light from glass fibres by means of scattering it in order to irradiate larger surfaces. Laser- und Medizintechnik Berlin GMBH (LMBT), a laser and medical technology company, has developed related rigid and flexible diffusers for field of laser therapy. "We have established a new manufacturing technique for polymer diffusers in connection with quartz glass fibre optic cables, for which laser induced scatter centres, so called micro-dots, are inserted into the diffuser material," explained Dr. Jürgen Helfermann, senior project manager for Biomedical Optics at LMBT. With this, various active lengths between 5 and 30 millimetres can be produced with lateral emission of up to 90 percent. By means of this, very high levels of laser output higher than 10 watts can be achieved. The wavelengths range from UV to almost infrared. Rigid diffusers have already been established; flexible designs are still in the stage of development.

Laser surgery with real-time control

At the COMPAMED Spring Convention, Dr. Alexander Krüger from the Laser Centre in Hannover (LZH) showed what possibilities are offered by laser surgery under real-time control via optical coherence tomography (OCT). The laser for cutting tissue can be linked directly to the optical access for imaging. The fully integrated solution jointly uses lasers, scanners and an objective. As an alternative to this, there are versions that are modularly integrated (joint scanners) and extensively separated. Today, femtosecond and excimer lasers are diversely used instruments in the field of ophthalmic surgery. With these, vitreous bodies in the eye can be specifically changed without injuring the retina or nerves in the process. Today, by means of ultra-rapid lasers, innovative cataract, age-related hyperopia and retina treatments are possible, whereby OCT serves for direct examination. In the future, it can be expected that laser therapy supported by imaging will conquer other fields of application - all the way to tumour removal, endoscopic brain laser surgery, cutting bones and larynx laser operations.

"Without a doubt, the use of light offers magnificent possibilities in the field of medical technology," commented Dr. Thomas Dietrich, managing director of the IVAM, summarising the knowledge from this year's COMPAMED Spring Convention. Therefore, this extraordinarily diverse topic that contributes to both the fields of diagnostics as well as therapy will also be playing a significant role as part of the COMPAMED 2015 being held from 16 to 19 November in halls 8a and 8b of the Düsseldorf Fairgrounds.

Messe Düsseldorf GmbH
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LABVOLUTION showcases the laboratory of the future



**06th - 08th Oct. 2015:
LABVOLUTION und BIOTECHNICA, Hannover (D)**

What will the lab of the future look like? The answer to this question can be found at LABVOLUTION in Hannover (6-8 October 2015). This new laboratory technology show will include the premiere of the special "smartLAB" display designed to give detailed insight into the intelligent laboratory of the future. Scientists and company representatives from all over Germany have formed a working group with the aim of developing a model of an intelligent laboratory. This model will make its debut at LABVOLUTION 2015 and illustrate various scenarios for laboratory operation in the era of digitization and Industry 4.0.

"At LABVOLUTION we will experience Laboratory 4.0 – a fully integrated lab concept which has never existed before in this form," explains Dr. Jochen Köckler, a member of the Managing Board at Deutsche Messe. "The new trade fair LABVOLUTION sets out to showcase the entire spectrum of laboratory technology and to illustrate and discuss future perspectives."

The goal of the smartLAB working party is to develop a realistic and plausible vision of the benefits derived from smart laboratories. Automation, information technology, human-machine interaction and big data play a key role in improving quality, cutting costs and minimizing the input of time and effort – in science as well as in industry.

"Despite the partial automation of certain areas, conventional laboratories are technologically obsolete," says Dr. Sascha Beutel from the Institute of Technical Chemistry at Hannover University and spokesperson of the LABVOLUTION-smartLAB working party. "In future it will be important to define common networking standards,

integrate laboratory procedures and create a laboratory environment which can be individually adapted to changing requirements."

In preparation for the smartLAB model laboratory in Hannover a digital framework has been created which allows devices made by different manufacturers to communicate with each other. Alongside the integration of hardware and software, smartLAB will focus on robotics and wearables. Smart laboratory glasses, for example, support a wide range of additional functions – thanks to their built-in camera and sensors. These include the monitoring of lab procedures, information sharing and video-based documentation. The smartLAB consists of individual laboratory modules according to the ballroom principle. Thanks to their innovative honeycomb structure, the individual modules offer a high degree of flexibility.

During LABVOLUTION the smartLAB will demonstrate its capabilities – live and in action. Four different scientific applications will be featured several times on each day of the show: media preparation (biotechnology); spectroscopic analysis (chemistry); a polymerase chain reaction (biology); and a 3D printing process (process technology). Parallel to this around 400 square meters have been set aside for an accompanying forum program which examines the various aspects of Laboratory 4.0.

In addition, the members of the smartLAB working party will give an insight into their activities. These include Hannover University (with its Institute of Technical Chemistry and the Laser Center), various private enterprises (Eppendorf, iTiZZiMO, Köttermann, Labfolder, Merck, PreSens Precision Sensing, Sartorius, Stäubli Tec-Systems Robotics) as well as Deutsche Messe. It is planned to expand the working party into a national cluster.

Deutsche Messe AG
D 30521 Hannover

Fakuma 2015 with New Opening Hours



**13th - 17th Oct. 2015: Fakuma,
Friedrichshafen (D)**

The Fakuma international trade fair for plastics processing, taking place from 13 to 17 October 2015, is already casting its shadow in advance. Just less than five months before the trade fair opens its doors, the Friedrichshafen Exhibition Centre on Lake Constance where Germany, Austria and Switzerland meet is completely booked out all the way down to the last bit of floor space – including the foyers in the East and West entrance areas. Beyond this, the East foyer will once again accommodate the popular and coveted exhibitor forum, for which numerous experts have already registered to deliver presentations and talks.

Furthermore, a special show will be held in the West foyer which has been conceptu-

alised as a "Thermoforming Island" and will provide information in a compact format concerning thermoforming technology in all of its aspects. The goal of this collective booth is to provide potential users with in-depth insights into the thermoforming process, especially in light of the fact that modern thermoforming is now approaching accuracy levels which were only recently deemed impossible.

Another exhibition segment worthy of special attention is additive and generative manufacturing, which is represented at Fakuma in tool and mould making as well as in parts manufacturing itself. Due to the fact that tool and mould making are essential Fakuma constituents, the presentation of so-called complementary manufacturing processes, by means of which the production of highly complex shapes and the integration of cooling channels close to the contour

are made possible through the application of metal powder and the use of machining, is an absolute must.

At the same time, new and alternative materials are offering undreamt-of substitution options in the production of samples as well as series parts with the 3D printing process, which in many cases is capable or more than just supplementing injection moulding, thermoforming and extrusion processes. The Fakuma international trade fair is the world's only technical event to provide a complete overview of all technologies and processes which are currently relevant for industrial plastics processing.

Fakuma 2015 opening hours: Tuesday through Friday from 9 a.m. to 5 p.m. and Saturday from 9 a.m. to 3 p.m.

P. E. Schall GmbH & Co. KG
D 72636 Frickenhausen

Personalized medical technologies are high up on the agenda at BIOTECHNICA



- Exhibition and forum at the BIOTECHNICA PLAZA
- Everything from companion diagnostics to bio IT

partnering area at a central location.

Each marketplace functions as a stand-alone platform for efficient knowledge transfer and comprises a group presentation and a forum. A colour coding system at the BIOTECHNICA PLAZA distinguishes the various marketplaces from one another. The exhibitors at the Marketplace for Personalized Medical Technologies will include diagnostics companies, (bio)pharmaceuticals companies, suppliers of medical devices and bioinformatics solutions, as well as clinical research organizations. This marketplace is targeted specifically at R&D personnel in the field of diagnostics and therapeutics as well as at researchers and practitioners in the area of inpatient and outpatient care.

The forum program comprises lectures on R&D-related topics, product presentations and company presentations. The call for papers for day one (Tuesday) is still in progress. On Wednesday the program (organized by the association Bio Deutschland) will focus on Bio IT and Personalized Medicine. Tailored medical treatment necessitates the processing of large quantities of information ("Big Data"). This poses an exciting challenge to bioinformatics companies. The program on Wednesday afternoon will be organized by PARMENIDes, an initiative for personalized diagnostics and medicine coordinated by DiagnostikNet-BB (Diagnostics Network Berlin-Brandenburg). This network is receiving support from the Federal Ministry of Education and Research within the framework of the so-called Twenty20 Program. Launched on 1 March 2015, the PARMENIDes Initiative has set itself the goal of developing personalized therapy concepts and transforming these into marketable products. More than 50 partners – small and medium-sized diagnostics companies, research institutes, laboratories, medical professionals working in various disciplines and patients' representatives – have joined forces in this initiative in order to promote the development of new products. The program on Thursday morning will be organized by hannoverimpuls GmbH, the joint business promotion agency of the city of Hannover and the Hannover Region. The lectures given by regional stakeholders from science, business and medical practice will examine the clinical application of personalized therapeutics and diagnostics. The know-how in the Hannover region ranges from the production of personalized drugs and the development of clinical markers to the patient-specific administration of anaesthetics.

06th - 08th Oct. 2015: LABVOLUTION und BIOTECHNICA, Hannover (D)

The world of medicine is changing fast, and "Personalized Medicine" is a very hot topic. Scientific researchers are constantly contributing new findings (e.g. in the area of pharmacogenetics) which ensure that patients receive personalized therapy on the basis of individual diagnoses. This applies in particular to the dosage and duration of medication. Personalized medicine has already had a positive impact on the treatment of cancer, autoimmune diseases and infections. BIOTECHNICA (6–8 October in Hannover, Germany) will address the challenges associated with the clinical application of patient-specific diagnostics and therapy – for example, at the Marketplace for Personalized Medicine Technology.

Alongside the topic of "Companion Diagnostics", RNA-based vaccination will figure prominently at the Marketplace for Personalized Medicine Technology. A further "headline" topic will be Bio IT.

BIOTECHNICA is closely attuned to the fundamental trends in the biotech sector. This is reflected in the three "Marketplaces": Personalized Medicine Technology, Bioeconomy and Bio IT (new). A new feature is the amalgamation of these marketplaces at the BIOTECHNICA PLAZA. The "heart" of BIOTECHNICA, the PLAZA unites the various marketplaces, forum platforms as well as a networking and

BIOTECHNICA and LABVOLUTION 2015

From 6 to 8 October 2015 Deutsche Messe is for the first time staging the two trade fairs BIOTECHNICA and LABVOLUTION in parallel at the Hannover Exhibition Center. For 30 years now BIOTECHNICA has been the premier trade fair for biotechnology and the life sciences in Germany and Europe. It covers the entire value-adding chain in the biotech sector – from basic scientific research to the finished product. The BIOTECHNICA PLAZA features dedicated "marketplaces" on Bioeconomy, Personalized Medicine Technologies and Bio-IT, thus covering all the hottest topics in the biotech sector. LABVOLUTION is celebrating its premiere in 2015. The new trade show presents the complete range of laboratory equipment and technology for research labs, analytical labs, production labs and training labs. Laboratory technology for the biotech and life sciences industry has always been an important theme at BIOTECHNICA. LABVOLUTION will now showcase laboratory technology for many other key markets: the chemical industry, the pharmaceutical industry, medicine, plastics, materials development and materials testing, cosmetics, medical technology, environmental engineering and the food industry. One ticket is valid for entry to both trade shows.

Deutsche Messe AG
D 30521 Hannover

Visitors to the Systec & Solutions trade fair stand could experience innovative GMP-IT at close quarters. A variety of HMI systems with multi-touchscreen were presented. Lots of visitors took the opportunity to try them out.

Vision Pharma 2015: highlights and new products

05th - 07th April 2016: EXPO LOUNGES 2016(LOUNGES, INNOVATION FOOD and VISION PHARMA), Stuttgart (D)

The multi-touchscreen can be described as a „touch-sensitive user interface for data input by finger“. In contrast to a single touchscreen, which can only process one touch at a time, the multi-touchscreen detects any number of points of contact at the same time. From a stainless steel tablet to a compact cleanroom workstation and 55“ monitor – visitors to the Systec & Solutions GmbH stand were able to experience multi-touch technology in many different forms.

Lots of visitors took the opportunity to not just try out finger-tip control, but also to operate the various multi-touchscreens wearing cleanroom gloves. The response was entirely positive.

A selection of new products straight from Vision Pharma:

- The TROLLEY MAXI - in the new hygienic design - is the ideal complete system for confined spaces and mobile use at several stations, shown here with the new PILOT 221 incl. multi-touch display.
- The elegant stainless steel TROLLEY LIGHT mobile workstation opens up a whole new range of control options, for example as

shown here in combination with the WAVE 224 incl. multi-touch display.

- Special format: The TROLLEY LIGHT with trapezoid stand and WAVE 221 in portrait orientation, suitable for software interfaces in 4:3 format with permanently visible multi-touch keyboard.
- The TROLLEY LIGHT INDUCTIVE equipped with keyboard, scanner holder, height adjuster and the PILOT 219.219.



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TROLLEY MAXI

TROLLEY LIGHT

TROLLEY LIGHT INDUCTIVE

TROLLEY LIGHT WAVE HOCHFORMAT

1st Trade Fair for Deburring and Polishing Technology from 13 to 15 October 2015 Progressing Along the Path to Success

DeburringEXPO – Efficiently Optimised Surfaces through Innovative Solutions

In nearly all of today's manufacturing industries, deburring, rounding and polishing are required production steps. Due to continuously increasing demands for product quality, precision and surface finishing with simultaneously rising cost pressure, companies are facing new challenges to an ever greater extent. DeburringEXPO will present innovative solutions for meeting these challenges at the Karlsruhe Exhibition Centre from the 13th through the 15th of October, 2015. The exhibitor list for the deburring and polishing trade fair already includes more than 70 exhibitors from eight countries (status as of 25 June 2015). The supplementary expert forum additionally offers a great deal of valuable knowledge.

**13th - 15th October 2015: DeburringEXPO 2015,
Karlsruhe (D)**

Whether parts are manufactured by means of machining, metal forming or master forming – deburring, rounding and polishing don't usually belong to the core competencies of manufacturing companies from the fields of automotive, aviation, medical technology, machinery manufacturing, drive technology, precision engineering, micro-systems technology, casting, hydraulics and other industry sectors. However, in order to fulfil today's typically exacting demands placed on product quality, functionality and service life, undesired "production remnants" have to be removed. In particular deburring processes are still frequently executed just like they were in days of old – with all of the associated disadvantages including a lack of reproducibility and high costs.

And thus companies are on the lookout for efficient and innovative solutions for the deburring, rounding and polishing steps. These can be found at DeburringEXPO. This is substantiated by the exhibitor list for the technical trade fair for deburring and polishing technology which already includes more than 70 companies. "Positive feedback, coming from companies outside of Germany as well, is confirming our concept for an independent trade fair aligned to the fields of deburring, rounding and polishing", stresses Hartmut Herdin, managing director of event promoters fairXperts GmbH & Co. KG. There's plenty of visitor interest in the new trade fair too. "An initial mailing to potential expert visitors also resulted in excellent feedback. In addition to market leaders from the automobile industry, automation technology, drive and transmission technology, aviation, machinery manufacturing, mechanical engineering, the sanitary industry, clock making and the tooling industry, numerous highly capable suppliers for various other industry sectors have already announced that they will visit the trade fair", says Hartmut Herdin.

Innovative Solutions for Enhanced Value Creation and a Sharper Competitive Edge

Numerous market and technology leaders are already amongst DeburringEXPO's exhibitors. This ensures that comprehensive, representative offerings for deburring, rounding and polishing processes and technologies will await the visitors. These will encompass vari-



ous innovative processes and further developments which not only assure the fulfilment of current requirements for process reliability and economic efficiency. Depending on the utilised technology, they also make it possible to furnish processed surfaces with special characteristics. Amongst others, these include reduced friction and wear, minimised noise levels, increased internal compressive stress, longer service life and energy savings. Issues covered by DeburringEXPO which also address the areas of product development and design engineering include burr avoidance and minimisation, as well as burr-free production of contours, structures and even non-cylindrical drill holes. The deburring, rounding and polishing production steps can thus contribute to enhanced value creation as well as a sharper competitive edge.

Expert Forum – Value Added through Knowledge and an Exchange of Experience

Exhibitor offerings presented at DeburringEXPO will be rounded with an integrated expert forum. A practically oriented transfer of knowledge concerning deburring and polishing technologies, as well as examples of best practice and a direct exchange of experience, will be at the centre of attention in this respect. This will make it possible for visitors to gather targeted information on various issues in the field of deburring and polishing technology.

DeburringEXPO Exhibition Program

Equipment, systems and tools for belt grinding, brushing, abrasive flow machining, vibratory grinding, blasting with solid and liquid media such as high pressure water jets and CO₂ snow jets, abrasive water-jet blasting, magnetic-abrasive deburring, ultrasonic deburring, chemical bath deburring, electrochemical machining (ECM), precision electrochemical machining (PECM), electron beam machining, thermal energy machining (TEM), mechanical deburring, buffing, polish honing, electrolytic polishing, plasma polishing, laser polishing, immersion and brush polishing, as well as measuring, test and analysis systems, deburring, rounding and polishing in the form of services, research, training and literature.

fairXperts GmbH
D 72639 Neuffen

The FBH presented its advanced diode lasers and UV light-emitting diodes at “Laser World of Photonics“ and the associated conference “CLEO Europe“

Comprehensive know-how and the full value chain, from technology development to complete systems



**26th - 29th June 2017: Laser World of Photonics,
München (D)**

The Ferdinand-Braun-Institut (FBH) exhibited a selection of current improvements and new developments regarding diode lasers and UV light-emitting diodes (LEDs) at the international trade fair „Laser World of Photonics“ in Munich from June 22 - 25, 2015. Based on the in-house available full technology chain, the institute's tailored diode lasers enable access to a variety of applications. From materials analytics, sensors, and display technology to materials processing – the flexible all-rounders can be perfectly optimized according to specific requirements. Increasingly, the institute refines its developments up to ready-to-use systems, enabling customers to test FBH developments in their individual application. The institute was also represented at the associated conference “CLEO Europe“ with the short course “High Power and High Brightness Semiconductor Laser Diodes and Applications“, several lectures, and posters.

Module for plant lighting with UV-B LEDs

The FBH develops the LED technology in the UV-B and UV-C spectral range from the chip to the final radiation module. Applications are wide-ranging and include medical diagnostics and fluorescence spectroscopy as well as UV curing and disinfection. A further application field is plant lighting, for which the FBH has developed and manufactured a module enabling irradiation with UV-B light of a specific wavelength. In this particular case, LEDs emitting at a wavelength around 310 nm are used to stimulate health-promoting secondary metabolites in plants. The optical power can be flexibly adjusted between 0 and 100%. The novel concept was successfully tested in experiments at the Institute of Vegetable and Ornamental Crops (IGZ). An exhibition module is available at the trade fair booth.

Separating signals – dual-wavelength diode laser for Raman spectroscopy

At the fair, the FBH exhibited novel dual-wavelength diode lasers that are suitable for use in miniaturized, portable laser measurement systems for Raman spectroscopy applications. The laser sources alternately emit light from only one chip at two different stabilized wavelengths, which are defined by gratings implemented into the semiconductor chip. Wavelength selection is realized by separately addressable sections within the laser. The innovative diode laser chip is ideally applicable for SERDS (Shifted Excitation Raman Difference Spectroscopy), enabling to measure Raman spectra under real-world conditions even in highly fluorescent environments and when exposed to daylight. Thus, it is possible to separate Raman signals from

background interferences. Moreover, SERDS improves the detection limit by one order of magnitude compared to standard Raman spectroscopy. With these FBH tiny monolithic light sources on chip level, a compact SERDS measurement head that is only as small as a laser pointer was realized for the first time. This device is the basis for a unique miniaturized and versatile SERDS spectroscopy system, enabling in-situ measurements in various security and health relevant fields including biology, medicine, food control, and pharmacy. Applications in absorption spectroscopy and for generating terahertz radiation are also conceivable.

Simple systems integration due to optical fiber connection – FaBriDi

Fiber-coupled demonstrators newly developed at FBH for industrial use aim at integrating laser radiation with high spectral brightness into various systems, thus enabling easier use. Now, efficient and compact laser sources are at hand emitting in the near-infrared on multi-watt level (CW operation) with a narrow-band spectrum and a stigmatic, nearly Gaussian laser beam which is independent of the optical power level. Such sources are highly demanded for the pumping of solid-state lasers and frequency doubling. On a footprint of less than 10 cm², the micro module integrates a 1064 nm distributed Bragg reflector (DBR) tapered laser, a micro-optical assembly designed to maintain brightness and mounted with sub-micrometer precision and temperature-stabilizing components. The module is also equipped with a single-mode fiber output with standard FC/APC connector.

Higher brilliance and output powers for diode lasers and bars

The institute develops highly brilliant diode lasers in a great variety of designs and packages, covering the wavelength range from 630 nm to 1180 nm. Single emitters with a stripe width of 90 µm, for example, reach peak brilliance results with 3.5 W/mm-mrad. The same applies to even smaller stripes delivering 4...5 W/mm-mrad from a 30 µm aperture. For rapid prototyping applications the FBH has developed DBR ridge waveguide (RW) lasers with 24 individually addressable emitters featuring a wavelength spacing > 0.3 nm and a spectral width < 1 pm. Further activities at the institute aim at constantly improving efficiency, reliability, and output power. FBH bars around 940 nm at temperatures of -70°C (203 K), for example, delivered a world-wide best result of 2 kW peak power per bar at a pulse width of 200 µs. To date, such powers could only be achieved by combining the optical beams from at least four single bars.

Ferdinand-Braun-Institut
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BIOTECHNICA and LABVOLUTION

New formats and major trends



- Biologization and digitalization are top themes

**06th - 08th Oct. 2015:
LABVOLUTION and BIOTECHNICA, Hannover (D)**

Two trade shows, one ticket: For the first time, Deutsche Messe is staging BIOTECHNICA (6 to 8 October 2015) in conjunction with the new LABVOLUTION in order to attract an even wider industry audience to Hannover. While BIOTECHNICA is a showcase for mainstream biotechnology and the life sciences, LABVOLUTION provides extended coverage of laboratory technology in other sectors of industry apart from biotechnology itself, including chemicals and pharmaceuticals, medical technology, environmental engineering, quality control and the food industry. One of the key themes explored by BIOTECHNICA and LABVOLUTION in Hannover is the trend towards biologization and digitalization.

Industry 4.0, networking, the whole world going mobile – digitalization is a megatrend of our age, familiar to all and directly affecting each one of us. But there are other key trends at work too, even if they are rather overshadowed by digitalization. One of these megatrends is so-called biologization. “Biologization, or the application of biotechnology to existing processes in a whole range of industry sectors, is already an important driver of innovation”, says Dr. Jochen Köckler, member of the Managing Board at Deutsche Messe. “BIOTECHNICA 2015 shows how far we have come down this road.” This view is confirmed by Dr. Peter Heinrich, Board chairman of BIO Deutschland: “There are very few problems today in areas such as food, health, the environment, climate change and energy where biotechnology cannot be a big part of the solution. In chemicals, pharmaceuticals, energy and materials, the biologization of traditional industries has become an unstoppable trend, and biotech companies have a special role to play here.” Dr. Siegfried Bialojan, Managing Director of the EY Life Science Center in Mannheim and a member of the advisory board for BIOTECHNICA and LABVOLUTION, cites some specific examples: “Whether it’s new textiles made from spider silk protein, flue gases turned into biomass for the production of plastics, or foodstuffs manufactured with the aid of certain types of yeast – the chemical and consumer goods industries have already embraced biologization with enthusiasm.”

Meanwhile the structurally similar trend towards digitalization and networking will also be much in evidence in Hannover. Köckler: “We’re looking forward to a world first in October: for the first time visitors to LABVOLUTION will be able to see a model ‘Laboratory 4.0’ in action, fully wired and networked for the virtual future.”

BIOTECHNICA – now with new PLAZA format and new “Bio-IT” marketplace

Digitalization is also a major theme at BIOTECHNICA this year. The new marketplace “Bio-IT” takes its place alongside the existing marketplaces “Bioeconomy” and “Personalized Medicine Technologies”, adding another important strand to the show’s coverage. The displays here examine both the role of IT in biotechnology and the use of bio-engineering in the IT industry. Also new for this year is the BIOTECHNICA PLAZA, which serves as a central connecting hub for the three marketplaces. As the starting point for exploring these



three featured themes, together with their associated Forum program hosted on two stages, and also as a meeting place for networking and partnering, the BIOTECHNICA PLAZA is very much the heart of the show. For the first time Deutsche Messe is offering a professional partnering service for exhibitors and visitors attending BIOTECHNICA and LABVOLUTION. There is no charge for using the service, which is powered by a special software tool developed by the EBD Group. This allows users to create their own online profile and schedule meetings at the show in advance.

Meanwhile BIOTECHNICA retains all its traditional strengths as Europe’s premier industry gathering for biotechnology and the life sciences. For 30 years now industry and the scientific community have used BIOTECHNICA to find products, technologies and partners for joint ventures. BIOTECHNICA is the only trade show of its kind to cover the complete value-adding chain for red, white and green biotechnology – from basic scientific research to the finished product.

LABVOLUTION – with smartLAB and European Lab Automation

By contrast, LABVOLUTION has no established track record as yet. It was less than a year ago, after all, that Deutsche Messe announced the creation of a new trade show with the aim of showcasing the complete range of laboratory equipment and technology for research labs, analytical labs, production labs and training labs. One of the highlights of this premiere will be the already mentioned special display smartLAB. This is a project in which a study group made up of scientists and business enterprises set out to design and develop an intelligent model laboratory. The result is smartLAB, which will be revealed to the public for the first time at LABVOLUTION. Live demonstrations of various application scenarios will show how laboratory life is changing in the age of digitalization. Running in parallel on the 400 m² dedicated display area will be a forum program exploring various aspects of “Laboratory 4.0”.

LABVOLUTION is also hosting this year’s European Lab Automation (ELA), Europe’s largest conference and exhibition on automation in the life sciences, last staged in Hamburg and Barcelona. The ELA exhibition will be integrated into LABVOLUTION, while the conference program – for which a separate ticket must be purchased – takes place in the adjacent Convention Center. The three strands of the ELA conference explore the themes Lab Automation and Robotics, Genome Engineering and Personalized Medicine.

In a departure from tradition, the formal opening event is not taking place on the eve of the show, but rather in the evening at the end of the first full day. One of the highlights of the BIOTECHNICA/LABVOLUTION Reception will be the presentation of the EUROPEAN BIOTECHNICA AWARD.

Deutsche Messe AG D 30521 Hannover

International specialist trade show for additive manufacturing

AM Expo is about to be launched

Messe Luzern is launching a new specialist trade show: AM Expo (Additive Manufacturing Expo). The AM Expo is the international specialist trade show for additive manufacturing and focuses on the rapidly growing serial production market. The specialist trade show will take place from 20 to 21 September 2016 and is about to be launched with a conference.

20th - 21st Sept. 2016: AM Expo 2016, Luzern (CH)

Contract manufacturers, machine producers and researchers will convene on Wednesday 24 June 2015 to discuss the current state of AM technology. The conference doubles up as the kick-off event for the launch of the AM Expo 2016. Additive manufacturing will already be a major topic in Lucerne a year before the trade show takes place.

Highly qualified speakers and experts will address the following issues:

- How can additive manufacturing create added value?
- How can a serial component be produced with additive manufacturing?

Promising kick-off event

The AM Expo is underway

The starting gun for the AM Expo has been fired. The specialist trade fair for additive manufacturing was launched at a kick-off event held on Wednesday 24 June 2015. High-calibre speakers and an informative table-top trade fair provided 120 participants with comprehensive information on the current status of additive manufacturing. The kick-off event has brought the AM Expo into position and paved the way for initial personal exchanges.

20th - 21st Sept. 2016: AM Expo 2016, Luzern (CH)

The kick-off event focused on the transfer of knowledge: How to create added value with additive manufacturing? How to produce a serial part with additive manufacturing? How to integrate additive manufacturing in existing processes? This and many other fundamental questions on additive manufacturing technology were addressed during ten lectures given by reputable experts. They conveyed a basic understanding of the different areas of application and technologies and their associated, future-oriented possibilities. The kick-off event has firmly launched the topic of additive manufacturing into orbit around central Switzerland. The atmosphere was excellent and participants appeared more than happy with the content of the event. Circumstances that no doubt please AM Expo director René Ziswiler: "I am very happy. The kick-off event was definitely a beneficial start to the promotion of additive manufacturing."

- How can additive manufacturing be integrated in existing processes?

The conference will be hosted by Matthias Baldinger of Additively. It will be followed by a networking event organised by swiss3Dprinting. Please see the website www.am-expo.ch for details.

The AM Expo – a more efficient and sustainable trade show visit

The AM Expo addresses the segments with the greatest AM potential, such as medical technology, industry, mobility, electronics and micro-technology. It focuses completely on serial production and highlights the numerous possibilities already offered by today's production technology. Contract manufacturers from across Europe and their upstream and downstream competence partners demonstrate what can be achieved with today's reliable technology.

Real partnerships

The AM Expo is sponsored by swiss3Dprinting. Additively was also gained as a strategic partner. Additively is a spin-off of ETH Zurich and is also the largest online platform for additive manufacturing. Messe Luzern has entered into and will benefit from a cooperation agreement with Messe Erfurt, the successful organiser of Rapid.Tech.

Messe Luzern AG
CH 6005 Luzern

Initial and valuable dialogue platform

Participants received helpful tips and ideas on how to include additive manufacturing in the value-adding chain in their companies. They were all keen to learn more. Many questions were asked that added depth to the discussion on additive manufacturing. The time between lectures was used to transfer knowledge and nurture contacts through networking. The lively exchange between participants and table-top exhibitors was equally appreciated by both.

100% additive manufacturing, 100% serial production

The AM Expo, which will take place from 20-21 September 2016 at the Lucerne Exhibition Centre, is also set to promote personal exchange. The specialised trade fair will highlight the possibilities of creating added value through additive manufacturing. "Companies need to recognise in good time the huge potential that additive manufacturing has to offer. The upcoming AM Expo will help them do just that," explains Matthias Baldinger, managing director and co-founder of Additively AG and a strategic partner of the AM Expo. The specialised trade fair will focus totally on additive manufacturing in serial production. Exhibitor showcases will be the central element at the AM Expo. They are categorised by manufacturer markets, applied technologies and certifications. Visitors will be able to quickly collect the information they need to form a comprehensive overview.

The coming months will now be used to further improve and refine the concept behind the AM Expo. René Ziswiler describes the main objective: "We want to become the number one event for additive manufacturing in Switzerland."

Messe Luzern AG
CH 6005 Luzern

Customized membrane solutions

Robust T-CUT tubular modules for micro and ultra filtration

The membrane and module manufacturer CUT Membrane Technology, since early 2013 a subsidiary of the Bürkert Group, will present a new product family of T-CUT tubular modules at the upcomingACHEMA trade fair. The robust tubular modules made of PVDF and PES are available with different membrane materials and cut-offs for individual membrane solutions.

The membranes of the T-CUT tubular modules, which are applied to high-quality supporting material, are designed for durability and a long service life. Due to the particularly high stability of the membranes and the option of cleaning them with chemicals, the T-CUT tubular modules can be used even in demanding applications such as the treatment of pickling baths. Other areas where the new tubular modules are used successfully include the metalworking industry, oil/water separation and the separation of biomass from water. Suitable for a high concen-



Neue robuste T-CUT Rohrmodule für die Mikro- und Ultrafiltration.

tration of solids, the modules are available in lengths from 1,000 to 3,100 mm with membrane tube diameters from 5,2 mm to 25,4 mm. The body, with an outer diameter of 25 to 300 mm, is available in the following materials: stainless steel, PP, PVC and GFRP. The pressure range of T-CUT tubular modules extends from 1 to 10 bar, and the temperature range is from 5 to 60 °C.

Established in April 2004, CUT Membrane Technology in Erkrath, Germany produces numerous innovative tubular, hollow fibre, PP and spiral wound modules for the separation of liquid media. These modules are increasingly being equipped with membranes from in-house production at CUT. Typical applications for the membrane solutions are to be found in such diverse areas such as chemicals, environmental technology, foods and metalworking. The company offers practically oriented consultation in the design and planning of filtration systems as well as other services.

Bürkert Fluid Control Systems
D 74653 Ingelfingen

The new temperature sensors from E+E Elektronik are now also available with 0-10 V or 4-20 mA outputs. The active sensors extend the portfolio of the Austrian sensor specialist in the field of HVAC and building technology. The compact, innovative housing and mounting concept with protection class IP65 / NEMA 4 facilitates extremely simple and fast installation of the sensors.

Active Temperature Sensors for HVAC and Building Technology



The E+E temperature sensor range includes duct mounted types, sensors for wall mounting indoors and outdoors, a strap-on sensor for mounting on ducts and pipes, and a version with remote probe. Special immersion wells with innovative mounting spring turn the duct versions into immersion sensors for temperature measurement in fluids.

The sensors offer outstanding accuracy and a wide temperature range. The measured values are available at a 0-10 V or 4-20 mA output. The factory scaling is freely selectable and can be subsequently changed by the user by means of an optional configuration

kit and free configuration software.

The clever housing design offers a considerable advantage when it comes to installing the sensor. Thanks to the external fixing holes, the device can be mounted with closed cover, which keeps the electronics protected against construction site pollution.

The new temperature sensor series from E+E Elektronik rounds off their existing product range of transmitters for humidity, CO₂ and air velocity, thereby offering an extensive sensor package for HVAC and building technology.



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