



Hans J. Michael GmbH



Want to improve your life sciences company's success? Then product design, development and introduction are key factors.

With today's aging global population, the medical device industry is poised for a sustained period of rapid growth fueled by a high level of innovation.

Medical Trends

Medical device manufacturers and their suppliers face a common challenge: Is it possible to improve financial performance, product innovation and quality while growing at a significant rate?



Tony Christian, Director of Cambashi, an independent industry analyst firm, says it is. In a recent study of the medical device market, Christian and consulting analyst Julie Fraser found the factors necessary to improve profitability within an environment of accelerating product introductions while maintaining high quality standards, despite unavoidable trade-offs.

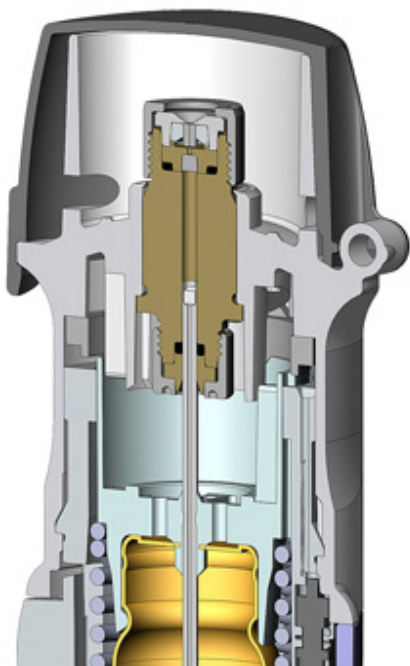
"Product design, development and introduction are key factors that will improve a life sciences company's success," Christian says. "There is always a balance to achieve between innovation and quality. Quality improvement is more daunting with the impact of regulatory and product changes, supply chain complexity and employee skill levels."

Cambashi's primary research involving medical device and life sciences companies and their suppliers focuses on strategies to grow and simultaneously increase business performance in areas such as cost containment, earnings, net operating profit and return on assets. "In fact, the best improvement opportunities relate to product innovation – that is, expanding the product set by rolling out new products and product lines or adding to existing product lines," Christian says.

Medical device manufacturers and their suppliers must become more agile to better manage the balance between quality, compliance and innovation, the study found. Material suppliers to the life sciences industry have quickly come to understand this and are catering even more to the needs of their customers. The combination of new products and higher volume signifies increased revenues. However, it also brings unprecedented challenges for the regulatory, production and supply chain departments. In some cases, growth can actually hurt profits.

"Product changes, whether engineering, techno-

Medical Trends



Product changes always pose challenges, says Tony Christian, director of independent industry analyst firm Cambashi. This was the case with innovative medical product, Respimat® Soft Mist™ Inhaler.

logy or material changes, pose one of the most significant challenges, especially with quality,” Christian says. “As product specifications change, so do quality targets, testing procedures and an array of processes. It’s difficult to get beyond a baseline and document the processes in the face of constant change. Product change ripples through every aspect of the organization, not just quality and regulatory compliance.” Supply chain issues rank high on the list of challenges, as product and regulatory changes impact suppliers. The U.S. Food and Drug Administration and other regulators make it clear that device makers are responsible for the quality and compliance of their suppliers. While suppliers have caused various problems in meeting standards, they rarely cause audit findings or compliance issues. Christian explains that medical device manufacturers must also be very careful in choosing their suppliers in light of the fact that they could cause problems in quality, obsolescence, manufacturing, costs and delays.

“Unfortunately, most companies do not have full visibility into materials compliance issues and may incur extra costs if they don’t catch environmental issues early in design,” he says.

More mature manufacturing industries that make products whose quality can impact human safety – such as automotive and aerospace – are more likely to use supplier quality processes. Aerospace companies



Seals from Trelleborg Sealing Solutions are an integral part of the innovative medical product, Respimat® Soft Mist™ Inhaler.



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commonly have supplier quality personnel who go on site with suppliers for improvement projects.

“Bringing better practices to lower costs and improve quality is a way of life for those industries,” Christian says. “Of course, that is challenging to do unless the company has its own quality processes that are well established and run effectively. Other industries are also working to master materials environmental compliance. Consider whether you can find suppliers that also sell into those industries, as strong capabilities can be a positive selling factor for them.”

Product innovation is essential to success in the life sciences industry. It often appears as a wide range of product families, and in products with many variants or configurations. Therefore, says Christian, it is important to select the right suppliers that can support new product initiatives. “Innovation is highly dynamic as new medical devices are developed, technologies improved, regulations changed and treatments adopted worldwide,” he says. He counsels manufacturers to ask themselves: “Have you invested the time

needed to adopt better practices and determine how to choose suppliers that will give you a competitive edge?”

Trelleborg in Life Sciences

Trelleborg Sealing Solutions develops, manufactures and supplies innovative engineered solutions for demanding medical, biotech and pharmaceutical applications in thermoplastics, silicone and other elastomers. Sandro Silverio, Global Director at Trelleborg Sealing Solutions with responsibility for life sciences, says: “We are an established and respected supplier to the life sciences industry. As Tony Christian points out, it has been our processes that have made us successful. As we supply so many industries and are a major supplier of sealing systems to automotive and aerospace manufacturers, the stringent quality disciplines required in these sectors have been seamlessly transferred to our life sciences customers.”

Trelleborg Sealing Solutions Silcotech AG
CH 8260 Stein am Rhein

Freiburg's Lord Mayor Dr. Dieter Salomon and Micronas' CEO Matthias Bopp joined hands to start the combined heat and power unit with power-heat-cryo cogeneration at the Freiburg location.

Micronas Combined Heat and Power (CHP) Unit in operation – Another step towards „Green Industry Park North“



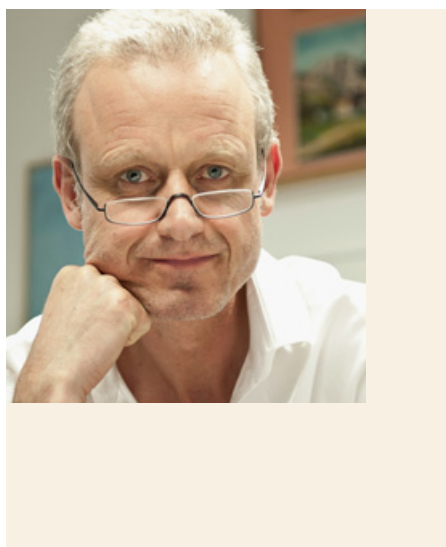
Micronas (SIX Swiss Exchange: MASN), known and recognized in the automotive and industrial business as a global partner for intelligent, sensor-based system solutions inaugurated on 7th July 2014 the Company's own combined heat and power unit after a four month construction phase and so demonstrated its commitment to alternative power generation and at the same time cutting its operating costs.

Following the installation of the large-scale photovoltaic system at the end of 2011, Micronas has now taken another major step towards the „Green Industry Park North“ by setting up the combined heat and power unit at the Company's Freiburg location. Lowering the use of fossil energy sources also helps to lower the emissions of climate-relevant carbon dioxide (CO₂) and other air pollutants. When it comes to reducing CO₂ emissions, saving scarce resources is not only a concern for private households but also for trade and industry. Furthermore, the combined heat and power unit is yet another step towards the partially self-sufficient power supply of Micronas at the Freiburg site, together with the Company's own photovoltaic system ensuring annual savings of over 35 percent of the total power and energy consumption. „Protection of the environment and economic efficiency must interact for us to be successful in the long term“, says Matthias Bopp, CEO of Micronas. „With these energy saving measures, we not only lower our operating expenses but also save a total of 6,000 tonnes of CO₂ every year“.

In the energy-intensive production of semiconductors, energy is needed in many areas and in various manifestations in the shape of heating, cooling and electric power. About 70 percent of the total energy at Micronas' Freiburg site is consumed by the wafer fabrication facility, primarily for air conditioning in the clean room and for ultra-pure water conditioning. Placing the power unit directly next to the production building keeps supply distances extremely short and ensures that transfer losses are kept to a minimum. Linking several consumer units into a heat-cryo combination and a supply network on the plant premises also guarantees that the waste heat generated can be used all year round – in winter for heating and in summer for cooling using what are known as absorption cryocoolers. The plant will therefore deliver ultimate operational efficiency with an extremely high use of primary energy.

For the construction work and the installation of the systems, Micronas relied solely on local companies, with the choice made for a modular mode of construction with several system units. This guarantees the best availability of the electric and thermal power if a unit fails or when carrying out service and maintenance work. The heart of the plant are two gas-driven combustion engines with a power rating each of 1,287 kW. If the plant is operated with the intended level of utilisation, the combined heat and power unit will reach a total energy efficiency for generating power, heat and cooling of over 90 percent.

Micronas GmbH
D 79108 Freiburg



Dear readers, dear subscribers,

summer is almost over 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 grows constantly. We hope, we can give you with this information a good help for your daily work and your planning tasks.

Yours sincerely

Reinhold Schuster



NEW

If you click at this sign in the pdf-document you will easily get more information in the internet

Recognition as Outstanding Supplier

Leo Best Supplier Award 2013 goes to Schreiner MediPharm



The pharmaceutical industry places high requirements on its suppliers, especially with regard to quality and delivery performance – this is also true for Leo Pharma. Schreiner MediPharm supplies the internationally active pharmaceutical company with Needle-Trap, which is applied to heparin syringes to protect from needlestick injuries. For its outstanding performance, Leo Pharma's production site at Vernouillet, France, awarded the "Leo Best Supplier Award 2013" to Schreiner MediPharm.

Needle-Trap combines a label with an integrated plastic trap. In close cooperation with Leo Pharma, the experts from Schreiner MediPharm were able to considerably improve performance with regard to quality and on time delivery. For this achievement, Leo Pharma distinguished Schreiner MediPharm as "Best Supplier 2013". "We are happy that the cooperative partnership is reinforced by the award. This prize honors us and motivates us to continue optimizing our processes in the future," said Rainer Alberth, Senior Sales Director at Schreiner MediPharm. Doriane Moulard and Benoit Joseph Bezine, purchasers at Leo Pharma, presented the Supplier of the Year Award to the team from Schreiner MediPharm.

Schreiner MediPharm, a business unit of
D 85764 Oberschleissheim

Filigree specialists among themselves – and BOY right in the middle



BOY injection moulding machines in the booth of Plastiversum

During the EPHJ-EPMT-SMT watch and medical technology fair in Geneva, everyone met who has specialized in the filigree technique in Switzerland. During the four-day event, BOY was represented by its distributor Plastiversum AG. The production of osteosynthesis plates was demonstrated on the BOY XS. These plates are used in the treatment of bone fractures and provide a fix quickly and safely.

The BOY XS is designed for the production of very small and micro parts made from thermoplastics, powdered metal (MIM) and powdered ceramic (CIM) filled materials. A screw diameter of 12 mm and a plasticizing volume up to maximum 8,0 cm³, makes the BOY XS the plus ultra in sprueless single-cavity injection moulding. With compact dimensions (0,77 m² footprint) and a clamping force of 100 kN, the BOY XS is the smallest machine from the BOY product range.

The BOY manufacturing philosophy, to use flexible and efficient single moulds and compact machines instead of large-sized, complicated and sensitive moulds, can be optimally used with this machine type.

Also the concept of a mould with interchangeable inserts meets the BOY XS-Series philosophy: The mould base frames remain fixed in the machine, the cavity inserts can be exchanged within a very short time.

Sascha Köppel was excited by the special exhibition. "The event was very successful for us as small shot weights and the BOY XS was the focus of the fair visitors. Numerous conversations – especially directly with the end customer – were very interesting for us and laid the foundation for promising projects.

Dr. Boy GmbH & Co. KG
D 53577 Neustadt-Ferthal

Engel Austria and Fill sign cooperation agreement

Composite technologies from a single source

Engel Austria and Fill, which is headquartered in Gurten, have put a seal on their partnership in the area of composite manufacturing. The two Upper Austrian companies will be working together to produce tailored turnkey solutions for the industrial manufacturing of fibre-reinforced plastic components.

„The aim of our partnership is to meet the demands of the market even more effectively and drive the industrialisation of composite processes forward even faster,“ says Franz Füreder, Vice President of Engel Austria's Automotive business unit. We are delighted that in Fill we have found a partner whose technologies are also the world's best and who, like Engel, prioritises research and development.“

Components made from fibre-reinforced plastics (FRP) play a key role in automotive lightweight construction. At the moment, the biggest challenge is developing economic processes for the mass production of innovative composite parts.

With its system and automation exper-

tise, injection moulding machine manufacturer Engel already has one success factor that is crucial for this. Fill enhances Engel's product portfolio in the area of preform manufacturing and processing. Franz Füreder says: „Interdisciplinary competence is absolutely essential if an FRP project is to be successful. It's only when the materials, designing and process steps are all coordinated with each other perfectly that the productivity and cost efficiency levels required in the automotive industry can be achieved.“

Engel has been collaborating with partner companies, universities and other research institutes in the field of automotive lightweight construction for many years now and in 2012 set up its own technology centre



Engel and Fill will be working together to produce tailored turnkey solutions for the industrial manufacturing of fibre-reinforced plastic components. The injection moulding machine manufacturer Engel is contributing its system and automation expertise. Fill enhances the product portfolio in the area of preform manufacturing and processing.

(Picture: Engel/Fill)

for lightweight composites at its large-scale machine factory in St. Valentin, Austria. It was this that prompted the partnership with Fill as well. The two partners have already completed their first projects for international automotive groups successfully.

ENGEL AUSTRIA GmbH A 4311 Schwertberg

New Eppendorf cell culture consumables deliver quality in all

Product, performance and packaging



The new Eppendorf Cell Culture Consumables offer a new dimension of safe, reproducible and reliable cell culture work. Scientists and technical personnel in the field of cell culture have a strong need for easy, safe and reliable products with improved handling that help prevent contamination. The latest products from Eppendorf deliver exceptional levels of product purity and security, as well as improved, ergonomic and

safe handling of cell cultures and advanced protection against contamination. The new, easy resealable packaging concept complements the products' unique features and performance.

Eppendorf Cell Culture Consumables are made from ultraclear virgin polystyrene, which complies with USP class VI for highest purity. Cell Culture Consumables have a ISO class /GMP class C clean room production

standard and a sterility assurance level (SAL) of 10⁻⁶ as well as batch specific 3rd party quality testing ensuring exceptional product and sample safety.

Innovative technologies in Eppendorf Cell Culture Consumables deliver ultimate ease of use. New high efficiency air filter technology in Eppendorf flasks provides improved contamination protection, while ConvexAccess™ neck geometry allows more ergonomic handling and facilitated entry into flasks. Meanwhile, a corrugated handling ring and new SplashProtect™ ring in dishes deliver safe, confident handling and better protection against contamination. Finally, Eppendorf's new chimney well design in plates minimizes the "edge effect" and leads to more reproducible assay results.

Many cell culture applications require the constant use of a sterile safety cabinet, which often has a limited amount of space available. Eppendorf's new packaging concept addresses this limitation through easy opening, truly resealable and shrinkable design, allowing safe storage and requiring less space, while an innovative tray allows easy removal of the products from the box and safe workflows.

Eppendorf AG D 22339 Hamburg

„Water treatment plants and distribution systems shall be designed, constructed and maintained so as to ensure a reliable source of water of an appropriate quality. They should not be operated beyond their designed capacity” EU Guidelines to Good Manufacturing Practice medical products for human and veterinary use. ANNEX 1 manufacture of sterile medicinal products.

View into future: Modular concepts for Purified and Highly Purified Water

This essential guide is also true for the reverse : a too large sized pharmaceutical water system inevitably causes high downtime, this can lead to microbiological deterioration. In many cases the current - especially but also the future demand for pharmaceutical water - not exactly predictable. The solution is a modular to expanding pharmaceutical water system.

This task was imposed in 2013 from Bionorica SE to Werner GmbH. Bionorica SE develops and produces since 1933 herbal medicines that combine the healing powers of nature with the latest knowledge from research and technology. The key for a reconciliation of high efficacy with good tolerability lies in the right combination of highly potent active ingredients. Bionorica SE developed

and now sells market-leading products such as „Sinupret“ in over 50 countries worldwide.

The task included a „State of the Art“ Purified Water generation system with automatic hot-water sanitisation. In addition to the currently required power capacity of the system it was important that a simple and straightforward extension option for another 100 % capacity is possible in the future.

The system has been delivered end of 2013 after prequalification during FAT and consist of the following stages of construction:

- seriell operating softener unit (85 °C) capacity designed for 2 x 100 % extension
- recirculation device TS-PLUS for selective and independent thermal sanitisation of the softener and reverse osmosis, mem-

brane degasser and cedi

- reverse osmosis extendable in different steps by using additional membranes without a change of the main system footprint size
- membrane degasser expendable by another module up to 200 % capacity
- electro deionisation expendable by another module up to 200 % capacity
- redox control in order to switch temporary to activated carbon filters in case of chlorination by the water works

The modular PW system has been working for 7 months now to the full satisfaction of Bionorica SE. The first extension by an additional membrane element for reverse osmosis is implemented in the medium term. All further stages of long-term securing the necessary amounts of Purified Water by

werner

Wilhelm Werner GmbH
Maybachstraße 29
D 51381 Leverkusen
Telefon: +49 2171 7675-0
Telefax: +49 2171 7675-10
E-Mail: barbara.traeger@werner-gmbh.com
Internet: <http://www.werner-gmbh.com>



PW-System Werner GmbH using Hotwater Sanitisation (©Werner GmbH 2014)

Statement by Joachim Schäfer, Managing Director of Messe Düsseldorf, concerning COMPAMED 2014

**12th - 14th Nov. 2014:
COMPAMED 2014, Duesseldorf (D)**

**12th - 15th Nov. 2014: MEDICA 2014
Duesseldorf (D)**



Medical technology still is among the fastest growing industries worldwide. However, the growth of the demand volume even in emerging markets is less based on volume expansion but more driven by targeted investments in modern systems and procedures. It seems that especially innovation-driven medical technology companies have an advantage here. Those who do not neglect their own research and product development and can clearly portray the added value of new equipment generations and procedures have the best chances in the market.

Thus, a significant role also is assigned to suppliers as important partners for product development, manufacturing, and services of the medical technology industry. Suppliers impressively demonstrate their performance capabilities every year with their leading market and communication platform: COMPAMED - High Tech Solutions for Medical Technology. No matter whether it involves new materials and appropriate processes for their treatment and processing, miniaturization of components, development of modern medical equipment, sterile packaging, or complete contract manufacturing, it is very often the know-how of the COMPAMED exhibitors that forms the starting point for great advances in medical technology.

COMPAMED itself also has made great progress. More than 700 exhibitors and a reserved area of more than 12,800 square meters mark a new top value in the success story of the event launched in 1992, the COMPAMED 2014 (12 to 14 November).

In conjunction with the world's largest medical exhibition, the MEDICA 2014 (4,500 exhibitors / 12 to 15 November) taking place at the same time as COMPAMED, the entire value-added chain for medical technology is explored - from individual components

to procedures for quality control to the finished product and related services for the complete product life-cycle (e.g., finance, re-manufacturing, spare parts handling). This coordinated tradeshow and thematic combination is unique in the world and attracts more and more visitors.

Of the 132,000 visitors who attended MEDICA and COMPAMED in 2013, already 17,000 visitors are especially interested in the special profile of the supplier tradeshow COMPAMED. While MEDICA is visited primarily by medical users, mainly engineers, developers and buyers of the medical technology industry (exhibitors at MEDICA) form the core of the visitor pool of COMPAMED.

Based on the innovations presented at the tradeshow, current trends are found especially in the area of micro system technology solutions for mobile diagnostics, monitoring and therapy systems. Some exhibitors specializing in compact measurement technologies worn close to the body, so-called „Wearables“ and „smart textiles“ focus on how the required technology can be best integrated into clothing. Thereby, there are numerous challenges to tackle: In this connection, wearable textiles must furthermore be stretchable without losing contact and should also be sufficiently robust for care.

In the meantime, the technical requirements for this are fulfilled by tiny sensors, flexible and stretchable substrates made of silicon, polyurethane, polyimide, or textiles that can accommodate electronic assemblies over a wide area, as well as miniature connection technologies, energy efficient communication electronics and high-performance energy storage that can be wirelessly charged, among other things.

New materials are a classic theme at COMPAMED. High-performance ceramics are innovative application examples with regard to current trends. Ceramics is an indispensable material in the field of implant medicine - whether knee joint components or ball head inserts and cups. Good tissue tolerance, low abrasion, high resistance, and a low risk of allergy are primarily notable advantages. Even as an alternative to transparent materials based on glass or polymer, ceramics is a noteworthy material, as the exhibitors at COMPAMED will impressively underline. There are companies that can offer ceramics with an extremely high transparency at equal strength such as sapphire glass. Sapphire glass also has a high refractive index as well as a competitive price-

performance ratio, all of which mean this innovation has a good market perspective, for example, with regard to the production of fine lenses for endoscopic procedures.

An exciting combination of material and process engineering is represented by 3D printing, an innovation that now also is being applied in the field of medical technology. Drilling templates customized to individual patients and used for knee or hip surgeries, for example, are already a currently relevant field of application. However, the last COMPAMED has already addressed this topic with the European project „ArtiVasc 3D“ concerning the development and production of soft tissue implants using 3D printing methods. These could serve as medical tissue replacement or as test systems for pharmaceuticals and cosmetics. Although 3D printing still sounds like science fiction right now, the process also applies to artificial support structures for blood vessels and veins. To find the right material, which is editable in 3D printing, and which can be used even at an acceptable cost, currently represents a major challenge. It will be interesting to see to what extent research institutions and providers of the solution will have converged at the time of COMPAMED 2014.

The tradeshow offerings of COMPAMED (Halls 8a and 8b) include the following focal areas: Components (including electronics, parts, hoses/tubes, filters, pumps, valves), materials, micro- and nano-technology, production (including assembly, automation and manufacturing technology, process technology, packaging) as well as testing and test systems.

Two forums with matching contexts inform on relevant medical supply trends. The COMPAMED HIGH-TECH FORUM (Hall 8a) of the IVAM Association for Micro-Technology here focuses microsystems technology, nanotechnologies, as well as production technology and process control.

At the COMPAMED SUPPLIERS FORUM of the specialist magazine DeviceMed (Hall 8b), current developments along the entire process chain are examined by experts from companies and organizations. Mechanical and electronic components are also subjects of lectures, as are innovations and all types of contract manufacturing.

The events COMPAMED and MEDICA can be visited again this year at no extra charge with only one tradeshow ticket.

Messe Düsseldorf GmbH D 40001 Düsseldorf

Une cellule Cleanroom et la technologie iBeacon seront au SINDEX 2014

Première suisse

SINDEX, le plus grand salon suisse de la technologie, vous accueille du 2 au 4 septembre avec deux premières. Pour la première fois en Suisse, un robot à deux bras sera présenté dans une salle blanche (Cleanroom). En outre, à l'occasion du SINDEX, le GROUPE BERNEXPO est le premier site d'exposition de Suisse à utiliser la technologie iBeacon. Les visiteurs obtiennent ainsi des informations complémentaires spécifiques à leur emplacement, via une application.

02nd - 04th Sept. 2014
SINDEX, Bern (CH)

Les robots sont depuis longtemps indispensables à l'industrie. A présent, le potentiel de l'automatisation est de plus en plus reconnu dans les laboratoires. SINDEX, le plus grand salon suisse de la technologie, a une longueur d'avance et dédie un domaine d'exposition à cette thématique, par le biais de l'exposition «Cleanroom Robotics». En collaboration avec le fabricant japonais YASKAWA, le SINDEX présente dans le cadre de «Cleanroom Robotics» une cellule robotisée conçue pour une utilisation en laboratoire, dans des salles blanches. Motoman CSDA10F, un robot à deux bras conçu pour les salles blanches, montre ses capacités dans cet en-

vironnement. Il s'occupe par exemple de la préparation complexe d'échantillons et manie les appareils d'analyse utilisés pour la recherche et le développement pharmaceutique.

Grâce aux robots de YASKAWA, spécialement conçus pour les laboratoires, on atteint un excellent niveau de qualité et de reproductibilité. De plus, l'automatisation dans les laboratoires permet d'étudier des substances auparavant considérées trop dangereuses ou non reproductibles. En même temps que la démonstration en salle blanche, de passionnants exposés consacrés à cette thématique se dérouleront dans le cadre de l'exposition.

Six halles d'exposition équipées avec des iBeacons

Le GROUPE BERNEXPO lance une nouveauté technique à l'occasion du grand rendez-vous technologique de Suisse. Le GROUPE BERNEXPO est le premier site d'exposition de Suisse à utiliser la technologie iBeacon. A cet effet, six halles d'exposition seront équipées de petits émetteurs Bluetooth qui enverront constamment des signaux. Ces signaux peuvent être captés avec l'application correspondante. Après avoir installé l'application sur leur smartphone, les visiteurs recevront des informations supplémentaires sur le SINDEX directement dans leur poche et seront informés sur les différents secteurs durant leur visite. L'application @BERNEXPO sera lancée pour Android (version 4.3 ou plus) et iPhone (à partir d'iOS7) en même temps que le début du salon SINDEX.

Le salon SINDEX a lieu pour la deuxième fois en 2014 et présente aussi bien des composants isolés que des solutions globales de services et de produits dans le domaine technologique. Cette année, le GROUPE BERNEXPO s'attend à accueillir plus de 400 exposants et près de 13 000 visiteurs au SINDEX.

BERNEXPO AG CH 3000 Bern 22

SIGMASOFT® Virtual Molding presented at Kunststoffen 2014

At the upcoming Kunststoffen 2014, Booth 186, SIGMASOFT® Virtual Molding is presented. As it accurately reproduces the complete injection molding process in the computer, possible production problems are found and solved inexpensively, while security is increased for the important decisions.

24th - 25th Sept. 2014:
Kunststoffen 2014, Veldhoven (NL)

SIGMA Engineering GmbH presents at Kunststoffen 2014 (Veldhoven, Netherlands, September 24th and 25th, 2014), Booth 186, its SIGMASOFT® Virtual Molding technology. The technology, based on over 25 years' experience in development of scientific-technical software, reproduces in all detail the complex interactions between polymer, mold and process times, successfully replicating the relevant parameter which determine process efficiency and part quality. The user identifies the root causes for problems in injection molding already upfront and establishes a deepened understanding of the molding process. Thus significant economic benefits are achieved and come along with

increased part quality, process stability and processing competence, i.e. the detailed technical knowhow about the own applications.

The process-experienced user has almost endless application possibilities with SIGMASOFT® Virtual Molding. As an intuitive to use tool it accompanies the whole process – from part design, through mold design optimization, determination of the processing window, up to process fine tuning and continuous process optimization – to increase productivity and save costs from day one. This works, because the user of SIGMASOFT® Virtual Molding integrates the complete mold design, with all components, its material properties and the relevant process parameters into his analysis and varies them according to his requirements and boundaries. Consequently all interactions in the system are reproduced at every time step and

location, and possible problems regarding article quality, cycle time and economic efficiency are identified timely. Thus the user early understands all potential weaknesses and has time to work on effective solutions, which finally results in robust molds and robust production processes. To build the mold and wait for mold trials to rework the mold is no longer required. These old-days iterations are minimized by users of SIGMASOFT® Virtual Molding and customers permanently re-iteration-free starts of production.

Besides the obvious economic advantages, first adopters again and again are surprised about the achieved process stability and how their deepened process competence is appreciated by their customers. Especially the relation between OEM and molder is further tightened – on a mutually beneficial, fair level. As several mold concepts can be tried inexpensively within days, it is possible to find an optimum configuration, and to properly communicate decisions along the development chain. And while more information about real cycle time and mold productivity is available, now mold quotations are more transparent and save. Decisions are based on sound technological background, which benefits the company reputation.

SIGMA Engineering GmbH D 52072 Aachen

Almost every recipe in the food or feed industry uses ingredients in powder or granulate form. The world's largest overview of the handling of powders, granulates and bulk solids will again be available at POWTECH, held at the Nuremberg exhibition centre from 30 September to 2 October 2014. More than 700 exhibitors from more than 25 countries will be showing the latest technological trends for all aspects of mechanised processes in the food and feed industry, including flavour and aroma-conserving cold grinding. Visitors can buy tickets starting on 19 August 2014 at www.powtech.de/ticketshop. Buying tickets online gets you into the trade fair faster and lets you bypass long queues at the box office.

- The world's largest overview of process technology, analytical equipment and handling for powders, granulates and bulk solids
- In parallel at the exhibition centre: the latest sterile technologies at TechnoPharm
- Advance online ticket sales start on 19 August 2014

Trends for food and feed specialists at POWTECH 2014

**30th Sept. - 02nd Oct. 2014:
POWTECH 2014, Nuremberg (D)**

The food industry has been using the advantages of aroma-conserving cold grinding for more than 40 years now, especially for spices. Seasonings get their flavour from essential oils. Industry relies on advanced cold-grinding technology to preserve the full quality of those flavours. It helps preserve 30 to 40 per cent more aroma, flavour and thus quality in spices.

In cold grinding – also known as cryogenic grinding – liquid nitrogen (or less commonly, dry ice) is used in a self-contained system for process conditions that preserve aromas. This form of mechanical comminution also reduces clumping in products containing oils and fats. It makes it possible as well to finely grind delicate products without altering their properties, for example as a result of oxidation processes.

An exchange of experiences among cryogenic grinding experts

Cryogenic grinding of delicate or difficult products requires not just a precise design of the mill equipment, but well-coordinated supplies of cryogenic gases, or other refrigerants, as well as a regulation of the refrigerant flow. POWTECH, the world's leading trade fair for processing, analysis and handling of powder and bulk solids, again offers the ideal forum not just for initial contacts, but also for intensive exchanges of experience among cold-grinding experts. Some 60 of the more than 700 exhibitors in Nuremberg will be showing systems, equipment and supplies for cold grinding. In addition to the technology leaders in comminution technology, these also include global market

leaders in industrial gases. This, probably the most comprehensive survey of technology in cryogenic grinding, means that POWTECH in Nuremberg also reflects a complete range of products for this specialised field of mechanical processing in the food industry.

The whole world of mechanical process engineering in five halls

Not only grinding but sifting, mixing, conveying, metering and agglomeration are indispensable parts of almost any food or feed production system. Planners and operators who come to Nuremberg will find comprehensive information – compactly presented in five halls – about the latest new developments and refinements in all these processes.

And there's a special advantage for process specialists from the food and feed industry: in a single visit, you can find out about the latest developments not just in powder and bulk solids technology, but in sterile technology. TechnoPharm, with some 250 exhibitors from about 15 countries, offers an ideal complement.

Not a dusty old theme: Safety technology

At POWTECH, production engineers, process technicians and systems planners in the food and feed industry will find not just the latest trends in process and production optimisation, but also a focus on plant safety and explosion prevention. So many materials are processed in powder form during production processes, or finish processing as powders or granulates, that dust can very readily increase safety risks all by itself.

The group of safety technology vendors, with about 350 exhibitors, is one of the most important at POWTECH. More than 200 of

these exhibitors will be showing innovative solutions for electric and non-electric explosion protection. A whole special forum on the second afternoon of POWTECH will even be devoted to efficient explosion protection. Technical presentations on fire and explosion protection will be followed by a panel discussion and an exclusive guided tour by trade journal publisher Vereinigte Fachverlage. Also worth seeing are the live explosions in the exhibition centre parklands.

Plant safety, emission protection and of course occupational safety are other important fields on offer that help make POWTECH one of the most important trade fairs for specialists in the food and feed industry in particular.

Forum on "Gentle conveying of solids"

It's not uncommon for the food and feed industry to use sensitive bulk solids that must be handled delicately and transported gently, without segregation, from point A to point B. A special lecture series by the Konradin Verlag publishing house on the first day of the fair will provide the POWTECH forum with a complete view of current technologies.

Upcoming events for experts in powders and bulk solids:

- 30.09.–2.10.2014 POWTECH, Nuremberg, Germany
- 14.–16.10.2014 IPB Conference & Exhibition, Shanghai, China
- 18.–20.02.2015 Powder & Bulk Solids India, Mumbai, India

NürnbergMesse GmbH
D 90471 Nürnberg

Hall B1, stand 1111 – Conveying systems in the Spotlight at Fakuma

motan-colortronic introduces the new METRO G material loader range

In the area of raw materials conveying, motan-colortronic will present its new METRO G range of material loaders at this year's Fakuma in Friedrichshafen from 14th to 18th October 2014 in hall B1 at stand 1111. This highlight will be shown together with METROLINK, an automatic coupling station which features its own autonomous control system. Other building blocks forming the „conveying“ segment include SilentLine, a patented noise reduction system for material feedlines and a permanent central vacuum system for large material throughputs.

14th - 18th Oct. 2014: FAKUMA 2014 Friedrichshafen (D)

motan-colortronic's spotlight this year will be focused on its innovative METRO G range of material loaders. This development by motan engineers combines the latest technologies from colortronic and motan and also enhances those systems with a number of new



features. METRO G's modular building block system allows users to configure and create the optimal material loader for any application. For example, a standard material loader unit can be expanded into a clean room version just by adding special vacuum diaphragm valve. A dust removal module provides for fine dust removal at the material loader, essential for some critical engineering plastics where absolutely no dust is allowed to enter the process. The system can also be fitted with modules with a tangential material inlet to provide a cyclone effect for processing those materials where a more coarse dust separation is required. METRO G allows users to configure the right material loader for their specific application.

The new METRO G loaders can work in conjunction with the compact METROLINK material selection system that produces the correct material/machine connection – quickly, reliably and without risk of confusion or contamination. Fixed material pipe connections provide for the highest level of operational reliability, right up to the next material change. The system is automatically purged before every material change, guaranteeing the material loader on the machine conveys contamination-free. The system also automatically takes care of setting up and monitoring the material path, making error impossible. Each METROLINK unit allows a maximum of 32 processing machines to be fed, with up to 16 different materials.

motan-colortronic's aptly-named SilentLine is a double walled material feedline system which guarantees minimum noise reduction of 12 dB(A), this equates to a 50% reduction in noise. And when combined with motan's gentle material conveying IntelliFlow, the system can even achieve additional sound reduction of up to 6 dB(A). SilentLine also detects leaks in material lines, allowing affected pipe sections to be easily identified and replaced. Another SilentLine advantage is that the system makes efficient use of thermal energy – the double walled pipeline provides an insulating effect which causes dried material to be cooled less quickly during the conveying process.

Another motan-colortronic exhibit at Fakuma will be its permanent central vacuum system. This system stands out thanks to its ability to continuously provide vacuum capacity for all conveying equipment connected, without the need to set up fixed vacuum lines. A vacuum control automatically adjusts the conveying air volume throughout the entire conveying system by regulating speed and switching blowers on/off as needed. This provides the conveying system with the correct vacuum capacity it requires at any given time. For users, this means a drastic reduction in energy costs, as the vacuum system minimises operations required to switch blowers/pumps on and off, and also does away with the need to constantly and repeatedly build up the vacuum in conveying system.

motan-colortronic gmbh D 61381 Friedrichsdorf

BOY Spanish distributor with home field advantage

**29th Sept. - 03rd Oct. 2014:
Equiplast 2014, Barcelona (ES)**

From September 29th thru October 3rd, the BOY Spanish distributor C.T. SERVICIO S.A. will demonstrate two BOY injection moulding machines at Equiplast/Barcelona in hall 3C / booth 371. A cleanroom application on the BOY 35 E (350 kN clamping force) and the production of circular bookmarks on a BOY XS (100 kN clamping force) will be shown.

Both machines will be equipped with the multi-patented Procan ALPHA[®] 2 control. The multi-language-independent configured control is characterized by intuitive operability. The multi-touch capability of the new screen technology will be especially impressive. Like modern communication devices, the pages can be selected by swiping.

Advantageous design

The BOY 35 E, optioned for a cleanroom application, will show the sprueless production of insulin pen covers in a sixteen-cavity

mould. In addition to a special anti-static coating, this machine, which is optioned for cleanroom class ISO 7, will be equipped with an ionization box for air filtration in the mould area and many stainless steel parts.

"The less space that must be isolated from ambient air, the lower the technical and financial production costs", explains Michael Kleinebrahm, BOY Manager Process Engineering. "Since the hydraulic clamping cylinders of the two-platen clamping unit are outside of the cantilevered mould area, this design provides significant advantages for the production of parts in a cleanroom environment. With this BOY 35 E application, the entire cleanroom incorporates the mould area of the clamping unit. The ionization box is integrated on the safety gate; a space-saving placement. The investment and operating costs are reduced to a minimum. The commercially available solutions for cleanroom applications are usually complex and therefore expensive. The BOY compact solution is a competitive and efficient alternative". The BOY 35 E efficient drive concept with a servo motor pump drive losses very small amounts of heat and in connection

with laminar flow hoods and stainless steel execution, represents an ideal cleanroom machine configuration. BOY is a system supplier that works together with powerful, specialized partners.

Dr. Boy GmbH & Co. KG
D 53577 Neustadt-Ferthal



Compact cleanroom application on the BOY 35 E

Exhibitor numbers at analytica China 2014 exceed expectations

Three months before the show, the number of confirmed exhibitors for analytica China 2014 has exceeded 650, which means a considerable increase of around ten percent compared to the final results of 2012. In addition, many countries are planning to join as national pavilions, among them Germany, Japan, Korea and the UK. The exhibitor application is available until July 24, 2014 at www.analyticachina.com.

**24th - 26th Sept. 2014:
analytica China, Shanghai (China)**

From September 24 to 26, 2014 analytica China will open at the Shanghai New International Expo Center (SNEC) with an exhibition space of 30,000 square meters. Three exhibition areas – Hall N1 for Life Sciences, Biotechnology and Diagnosis, Hall N2 for Analysis and Quality Control, and Hall N3, newly-added for Laboratory Equipment and Technology – will feature the trade show.

Susanne Groedl, Exhibition Director Messe München, states: "In face of the expansion of exhibition space, the exhibitor numbers already exceed our expectations. analytica China has become an important channel for the exploration of the Chinese

and Asian market and that is why so many new exhibitors are joining us. They will bring analytica China 2014 new energy as well as more new products and ideas for the visitors and end users."

As the influence and recognition of analytica China increase, many new exhibitors are going to participate. They are also from new areas such as life sciences, diagnosis, material analysis, food analysis, biotechnology services and third-party testing. By the end of June 2014, analytica China has seen registrations of around 200 new exhibitors, amongst others Abcam, Aladdin, AMT Group, ANEST IWATA, Beijing Sunway, Bel Engineering S.R.L., Bronkhorst, FOSS ANALYTICAL, Japan SHINWA CHEMICAL, Newport, Taiwan Papago, Taiwan Protech Technology, Think-lab, TSI, Wilsonart and 3M.

Further, the high level of interest from outside China is underlined by the strong participation of exhibitors at the German pavilion. Currently the exhibition space of the joint stand amounts to more than 500 square meters which consequently makes it the biggest German pavilion in the history of analytica China. Amongst others, the following companies have announced their presence: Andreas Hettich GmbH & Co KG, Berthold Detection Systems GmbH, IKA Works Guangzhou, Schmidt + Haensch GmbH as well as Waldner Laboreinrichtungen.

analytica China is an international analysis and biotechnology trade fair. Based on the international analytica network and its influence worldwide, the trade show is attracting exhibitors of analysis, diagnosis, laboratory technology and biotechnology from all major industrial countries in the world. Today, analytica China has become the biggest sector event in China. It is one of the best platforms for industry leaders to exhibit their latest technology, products and solutions. Moreover, the analytica China Conference organized along with the exhibition is also a focus of the industry. The conference program offers an important opportunity for knowledge exchange between research and commerce.

Messe München GmbH D 81823 München

Know-How and User Focus Generate Excitement at Erfurt Conference and Trade Fair

Rapid.Tech – Concentrated Expertise in Additive Manufacturing

The 11th Rapid.Tech in Erfurt, held on 14 and 15 May 2014, served to further expand the fair's position as one of the leading international meeting points for additive manufacturing. Around 3,500 visitors from 20 countries caught up on the latest developments, trends and applications in the field during the two-day event. There were plenty of opportunities for this, with over 78 exhibitors in addition to 60 talks by renowned presenters from academia, research and industry. They all made one thing clear: additive manufacturing is a key technology of the next industrial revolution – and in some industries, this has already begun. The second Fab.Con 3D, Germany's only professional consumer fair for 3D printing, was held to coincide with Rapid.Tech, running from 15 to 17 May.

**10th - 11th June 2015:
Rapid.Tech, 2015 Erfurt (D)**

Since 2004, Rapid.Tech in Erfurt has provided an opportunity for an intensive, hands-on exchange of knowledge across multiple industries for insiders and newcomers, researchers and users, as well as for manufacturers of equipment and materials used in additive manufacturing. This year's event provided a unique offering of sessions relating to additive manufacturing (AM), including a user conference, a design engineers day and specialist forums in aviation, medical technology, and CAD/CAM and rapid prototyping in dental technology.

AM to Have Lasting Impact on Future Manufacturing

Lately, additive manufacturing processes have been making the transition from rapid prototyping technology to series manufacturing in more and more industries. In his keynote presentation, Dr Olaf Rehme (Engineering, Siemens AG) discussed examples of current implementation in industry and determined that the additive manufacturing process chain is knowledge intensive. He then expounded on the opportunities and challenges. Areas requiring further development according to Rehme include materials, component design rules, and the relationship between productivity and costs, as well as process monitoring and quality control. He concluded by highlighting the possibility that, in the future, products could be stored in databases rather than in warehouses. "Additive Manufacturing – A Game Changer for the Manufacturing Industry?" – this was the question tackled by the second keynote speaker, Dr Bernhard Langefeld of Roland Berger Strategy Consultants. Based on the results of a current study, he demonstrated that ongoing development of AM into a pro-

cess for series manufacturing has led to the establishment of a new value creation chain for materials, development and contract manufacturing. The total market volume, approximately 1.7 billion euro in 2012, is expected to quadruple in the next ten years. This predicted growth also includes the increased use of high-tech metal components manufactured via additive processes. According to Langefeld, reasons for this include expectations of higher print speeds, for example as a result of using multiple and more powerful lasers, as well as optimised beam control and lower costs for metal powders. This, combined with the flexibility and other advantages of additive manufacturing processes, makes AM a key technology for producing high-performance components, shortening development processes, increasing manufacturing flexibility and bringing Industry 4.0 to fruition. The next two keynote presentations dealt with innovative solutions for AM. Dr Oliver Keßling presented a new industrial process for additive manufacturing with the ARBURG Plastic Freeformer (AKF). It can be used to produce highly complex components from series-production plastics. Friedemann Lell of Sauer GmbH/DMG Mori Seiki talked about the Lasertec 65 AM, an innovative solution for additive manufacturing in finished-part quality. This hybrid solution is the first in the world to combine additive laser deposition and a full-fledged 5-axis milling machine in one system.

User Conference – New Technologies

As AM use in series production continues to grow, so too does the selection of processes, methods and machines. The 13 presentations at this year's user conference provided a detailed overview of this. Vasy Kashevko of the Institute for Machine Tools and Factory Management (IWF) at the Berlin University of Technology presented a newly developed test for investigating the design

limits of additive manufacturing processes. This test makes it possible, when using new materials, to gauge the scaling options and manufacturing limits of various design characteristics with the materials used in selective laser melting. Christian Polzin, University of Rostock, presented a new 3D printing process for producing ceramic moulded bodies from aluminium oxide and silicon carbide. Both base materials find wide application in the field of technical ceramics: aluminium oxide is used to produce items such as inserts or sintering aids, while silicon carbide is used to manufacture burner elements or plain bearings, among other things. Other presentations dealt with subjects such as 3D screen printing, which is used to manufacture miniaturised components on a large scale, as well as the innovative and environmentally sound technology of eColouring, open source hardware, new printing technologies and software developments. User reports were also on the agenda, including one by Theresa Swetly of BMW AG Munich, who reported on the possibility of using additively manufactured components for the purpose of securing components in the vehicle cockpits of the Bavarian automobile manufacturer.

Design Engineers Day – Possibilities and Limits of Additive Processes

One of the biggest advantages of additive manufacturing is the nearly unlimited freedom of design that it affords. At the same time, this freedom presents one of the greatest challenges for designers. Designing components for additive manufacture has its own set of rules, and these were the subject of the eight presentations at the design engineers day on 15 May 2014. The presentations covered topics such as the expansion of the scope of previously developed design rules for various boundary conditions involved in laser sintering, as well as the development and design of a metal structural

Rapid.Tech – Concentrated Expertise in Additive Manufacturing

component for racing cars by means of FE-aided optimisation of the topology for additive manufacturing. Alexander N. Steiner of netfab GmbH presented an innovative software solution that enables the computer-based development of structures of any complexity, based on patterns from nature. The subsequent additive manufacturing step produces components that have new properties solely as a result of changing the structure of known materials. Fabian Riß of the Fraunhofer Institute for Machine Tools and Forming Technology (IWU) presented a new design approach for the load-oriented design of sandwich construction components. The method makes it possible to fit honeycomb structures to a free-form surface, and to adapt them geometrically, in accordance with load requirements. Combined with additive manufacturing, the lightweight construction potential can be better utilised in comparison with conventional manufacturing. Other functions can also be integrated at the same time, such as optimised cover-layer bonding and reduction of the telegraphing effect.

AM – Great Potential in Aviation

AM technology has already been used productively in some areas of aviation. Stephan Eelman of The Boeing Company made this clear in his presentation. He provided an overview of the essential fields of application of additive manufacturing at the world's largest aircraft manufacturer, and presented a selection of examples. He then used these examples to explain the requirements and challenges involved when transferring the various manufacturing processes and materials from rapid prototyping to series production of aircraft components. Alexander Altmann of Liebherr Aerospace Lindenberg GmbH presented a new approach for producing hydraulic valve blocks for use in aviation by means of the selective laser melting (SLM) process. He showed the results of a study in which weight savings of up to 55 per cent were achieved in comparison with conventionally manufactured components while maintaining comparable performance and comparable production costs. Among the topics covered at the two-day event, which included a total of 13 presentations, was the European joint research project RepAIR: twelve institutions, headed by the University of Paderborn, are working together to study the potential of additive manufacturing in aircraft maintenance. Partners such as Boeing and Lufthansa Technik are testing holistic application scenarios with regard to maintenance and repair processes while taking into account topics such as certifica-

tion requirements in the aviation sector as well as economic aspects and influencing factors involved in additive manufacturing. There were also presentations on the possibilities opened up by a new software function for the design of grid structures, which enables the special advantages of AM to be tapped.

New Possibilities for Individual Solutions in Medical Technology

Additive processes are also becoming increasingly important in the field of medical technology. This was demonstrated by the twelve presentations to the two-day specialist forum on medical technology. Paulo Bárto, University of Manchester, presented trends in tissue processing, referred to as biomanufacturing. Professor Uwe Gbureck, University of Würzburg, talked about the production and active-ingredient modification of ceramic implants and scaffolds with complex shapes by means of 3D powder printing. First, he showed that bioceramics made of calcium phosphate or magnesium phosphate cements are suitable as bone replacement materials because of their similarity to the mineral phase of bone. Next, he dealt with the modification of these structures using active ingredients such as antibiotics or additives that promote healing. He then talked about the 3D printing of calcium phosphate-based replacement bone and the post-processing of 3D-printed, ceramic bone-replacement structures. Ronny Hagemann of Laser Zentrum Hannover presented a process for the selective laser micro-melting of platinum-iridium alloys. The material is preferred for biomedical implants such as pacemakers because of its unique biological and electrical properties. In tests, the process was able to create reproducibly homogeneous layers that were fully and materially bonded to the substrate material. One lecture series also covered practical clinical applications for additive manufacturing. In this series, Dr Philipp Fünrstahl, University Hospital Balgrist, illustrated that additive manufacturing has arrived in the operating theatre. The hospital has already seen surgical operations on 100 patients planned in 3D and implemented successfully using patient-specific templates.

3D Advances in Dental Technology

Digital technology is taking giant steps toward becoming established not only in dental practices, but also in dental laboratories. The specialist forum on CAD/CAM and Rapid Prototyping in Dental Technology

saw twelve presentations dealing with the current state of the art and latest developments. Emidio Marco Cennerilli of EGS S.r.l. reported on the latest trends in digital dental medicine as well as on currently available technologies. He also explained how the latest digital technologies can optimise communication between the dentist, the patient and the laboratory. Dr Sascha Cramer von Clausbruch, of Wieland Dental + Technik GmbH, compared the optical and mechanical properties of fully ceramic systems (leucite glass-ceramic, lithium-disilicate glass-ceramic and translucent zirconium dioxide), which have the advantage of being suitable for the digital production of monolithic restorations. Dr Anna Jacobi of the Jacobi, Fendt & Kollegen dental practice shared initial clinical experiences with the Replicate system. The procedure was explained in the presentation. One special feature of the procedure is that the patient-customised implant is planned and designed before extraction, using DVT imaging and a digitisation of the clinical pre-treatment situation. The root-like implant is fitted with a customised zircon abutment and is inserted in the existing alveolar socket immediately following extraction.

New Experiences

This year's Rapid.Tech was full of new ideas, not just in the specialist forums, the user conference and the design engineers day, but also in the exhibition hall. EOS GmbH, for example, chose Rapid.Tech as the venue for the world debut of its new metal system, EOSINT M 290. "Our participation in the trade fair has been very successful in the past. That's why we decided to present the new machine here live, and the interest has exceeded our expectations by a long way," reported Stephan Wein, Area Manager at EOS. Exhibitors at Rapid.Tech have also detected an increase in demand for metal machines. Among those profiting from this was Frank Borkenhagen, Sales Manager Germany at Praxair Surface Technology GmbH: "Our metal powders for thermal spraying can for the most part also be used for laser sintering. That's why we decided to exhibit at Rapid.Tech for the first time. We have encountered a high level of interest and are very pleased with our participation in the trade fair. For that reason, I am certain we will be exhibiting here again in 2015."

Messe Erfurt GmbH
D 99094 Erfurt

Nuremberg has the right chemistry!

Mechanical processes have an important role to play in the chemical industry. Wherever raw materials, intermediate products or end products are in powder or bulk form, process steps like comminution, mixing, conveying and analysis become indispensable. From 30 September to 2 October 2014, more than 700 exhibitors from more than 25 countries will again be coming to the Nuremberg exhibition centre to attend POWTECH, the world's leading trade fair in its field, showing everything the chemical industry needs to handle powders, granulates and bulk materials – including analysis. Tickets will be available from 19 August 2014 at www.powtech.de/ticketshop. Buying tickets online gets you into the trade fair faster and lets you bypass long queues at the box office.

30th Sept. - 02nd Oct. 2014: POWTECH 2014, Nuremberg (D)

Even under laboratory conditions, analyses of such factors as particle size, particle size distribution, particle shape and bulk density are among some of the most arduous tasks. A vast range of optical and mechanical analytical systems are used to characterise powders by size, shape, distribution and concentration. But since chemistry often also needs information about particles' flow characteristics, molecular weight, viscosity and zeta potential in emulsions and suspensions, analytical equipment becomes a key matter of interest when mechanical processes must be controlled.

Almost one out of every three exhibitors at POWTECH offers analytical equipment. That large figure reflects the great importance of analysis in processing powders and bulk solids. More than 200 exhibitors will be offering what may well be the world's most comprehensive overview of various analytical systems for powders, granulates and bulk solids.

Analysis becomes a part of the process

Optimised process management, and of course the pressure to maintain quality at low cost, are the main motivations to provide particle analysis as an actual part of a

process, or at least nearby. That need has sparked demand for analytical equipment integrated directly into processes. Only such inline and online systems can improve an understanding of the process and make it possible to provide set points for automation. Direct observation of such characteristics as particle size distribution in powders makes processes much more efficient and faster to monitor and control. Waste is minimised, and employed energy is utilised to the best advantage because such steps as grinding need to be continued only as long as is absolutely necessary. There's also no need to prepare and transport samples as well. POWTECH 2014 has solutions as well for the stringent requirements of real-time particle analysis, because nearly 40 internationally important exhibitors will be bringing their latest developments in inline and online particle analysis to Nuremberg. That means POWTECH 2014 will be a showcase of innovation. The most important vendors will demonstrate how real-time particle analysis can be used for perfect process and production management – whether in initial testing, process control, or process monitoring.

Dust a core problem for plant safety and explosion prevention

At POWTECH, production engineers, process technicians and systems planners in the chemical industry will find not just the latest trends in process and production optimisation, but also a focus on plant safety and explosion prevention. So many materials used in chemistry are processed in powder form during production processes, or finish processing as powders or granulates, that dust can very readily increase safety risks all by itself.

The group of safety technology vendors, with about 350 exhibitors, is one of the most important at POWTECH. More than 200 of these exhibitors will be showing innovative solutions for electric and non-electric explosion protection. Other important fields offer include fire protection, emission protection, and of course occupational safety, helping to make POWTECH one of the most important trade fairs for specialists in chemistry in particular.

Special forum on explosion protection

The second afternoon of the event will also be devoted to efficient explosion protection at the POWTECH forum. Technical presentations on fire and explosion protection will be followed by a panel discussion and an exclusive guided tour by trade journal publisher Vereinigte Fachverlage. Also worth seeing are the live explosions in the exhibition centre parklands.

Forum on "Gentle conveying of solids"

It's not uncommon for the chemical industry to use sensitive bulk solids that must be handled delicately and transported gently, without segregation, from point A to point B. A special lecture series by the Konradin Verlag publishing house on the first day of the fair will provide the POWTECH forum with a complete view of current technologies.

NürnbergMesse GmbH
D 90471 Nürnberg

Welcome to the Engel stand at Fakuma 2014

14th - 18th Oct. 2014: FAKUMA 2014 Friedrichshafen (D)

In the Medical section of its stand at Fakuma 2014, Engel will be producing drip chambers with integrated filter for blood transfusions. An Engel e-victory 310H/80W/50V 160 combi tri-component injection moulding machine with ecodrive and a clean room design will be used in this highly integrated production process. Each drip chamber will comprise one ABS and one PP component; in a single workstep, they will be injection moulded, fitted with the filter and

joined by means of overmoulding with additional polypropylene. This high degree of integration significantly boosts efficiency in the manufacturing of multi-component hollow bodies with inlays. Conventionally, the two hollow body components are individually injection moulded; the inlay is then fitted and bonded in subsequent process steps. "Drip chambers are mass-market products that need to be manufactured economically despite the stringent demands on product safety and hygiene," says Christoph Lhota, Vice President of Engel's Medical business unit, underlining the importance of the innovation. "We believe there is potential for

this innovative one-shot process in other sectors too, such as the production of fuel filters in the automotive field."

One key prerequisite in realising the integrated process is servoelectric drive technology for all movements of the index plate mould; this facilitates the synchronous control of mutually independent movements. For this application, the mould manufacturing partner is Hack Formenbau.

An Engel easix multi-axis robot is also integrated in the manufacturing cell along with a system for total quality control. The drip chambers are inspected for seal tightness directly after injection moulding.

ENGEL AUSTRIA GmbH
A 4311 Schwertberg

EuroMold 2014 optimises hall concept for exhibitor success

- With a new structure of its exhibition halls, EuroMold 2014 is increasing its significance for the entire process chain
- Moldmaking and tooling in direct exchange with additive manufacturing
- Students get accustomed with 3D technology

**25th - 28th Nov. 2014:
EuroMold 2014
Frankfurt am Main (D)**

The EuroMold, the world's leading specialist trade fair for moldmaking and tooling, design and application development, is to take place from 25 to 28 November 2014, and this year aims to set itself apart by means of a new hall concept. The new layout of exhibition halls 8.0, 9.0 and 11.0 will spatially reflect synergy effects and future prospects in the fields of moldmaking, tooling and additive manufacturing. By redesigning the layout of the exhibition areas, visitors will have an even clearer impression of the possibilities regarding collaboration, innovation and future prospects across the entire process chain.

Exhibition hall 8.0 represents the centre-piece of this year's EuroMold. Through the special exhibition entitled "Additive Manufacturing and Tooling", it will demonstrate examples of profitable cooperation between both sectors. In a similar way, this will be clearly addressed in the 'theme park' entitled, "Strength in moldmaking with additive manufacturing". In addition, the 'Thermoform Area' and the topical forums entitled "Ma-

terials" and "Lightweight Construction" will take place in Hall 8.0. The offering will be rounded off with the Design & Engineering Forum, together with the CAE Forum, which will focus on the state-of-the-art technologies in the field of computer-supported design and engineering. Furthermore, the CAMPUS area, which will focus on lightweight construction, will offer companies and universities the opportunity to share ideas and establish new contacts.

Exhibition hall 9.0 will be dedicated entirely to Asian exhibitors, representing the moldmaking and tooling industries among others. The Asian market is continuously increasing in importance for European companies, and represents the sales market of tomorrow for all industry sectors. In Hall 9.0 visitors will find the most recent products and technological innovations from the Far East. Visitors will also have the chance to establish direct contact with manufacturers from Asian countries and develop new contacts.

In Hall 11.0 the focus will be on additive manufacturing, rapid prototyping / rapid tooling and 3D printing. Innovations from the creative sector and the field of application design will be on display. A particular highlight will be the EuroMold 3D School,

which will offer students the chance to try their hand at 3D printing. A classroom will be installed in the exhibition hall, in which students will receive lessons on the topic of 3D printing.

"With the new structure of the exhibition halls, we are better positioned to meet the desires of exhibitors and visitors," says trade fair Eberhard Döring. "We will arrange the exhibition areas in exhibition halls 8.0, 9.0 and 11.0 in such a way that the added value to be found in inter-industry collaboration becomes even more apparent. Moreover, this year the strong trend towards joint stands is an encouraging development. For example, a large number of associations, countries, regions and research institutes are set to present their work alongside one another. This demonstrates the spirit in which the EuroMold takes place year after year: 'Success through Diversity'."

As the world's only specialist trade fair of its kind, EuroMold covers the entire industrial production process chain – operating under the slogan, "From idea to series production". Traditionally, its visitors come from all areas of industry.

DEMAT GmbH - Direct Exposition Managing
and Trading D 60596 Frankfurt am Main

TechnoPharm, Europe's leading trade show for sterile processing technology for pharmaceuticals, food and cosmetics, will take place in Nuremberg from 30 September to 2 October 2014. In parallel, prominent experts in the sector will present more than 60 talks about the state of the art. Highlights will be the forum on serialisation for pharmaceutical manufacturers, a series of talks by the German Packaging Institute and a specialist presentation on orodispersible tablets by Prof. Dr. Jörg Breitzkreutz, Director of the Institute of Pharmaceutical Technology and Biopharmacy at Dusseldorf University and Chairman of the Association for Pharmaceutical Technology, the Fair's Honorary Sponsor. In this expert interview, Prof. Breitzkreutz offers a preview of the innovative subject he will be speaking on during the TechnoPharm specialist forum at 1:30 p.m. on 1 October.

Expert interview – new pharmaceutical forms on the advance

**30th Sept. - 02nd Oct. 2014:
TechnoPharm 2014, Nuremberg (D)**

What are orodispersible pharmaceuticals (ODX)?

Prof. Dr. Jörg Breitzkreutz: ODX disintegrate in the mouth in just a few seconds. This means you can take them without additional liquid. Most orodispersible forms release the

active ingredient quickly, which then either acts locally on the oral mucosa, reaches the bloodstream directly via the oral mucosa, or can be taken up via the gastrointestinal tract after the saliva containing the pharmaceutical is swallowed.

What is the particular benefit of the mini-tablets that you have developed?

Prof. Breitzkreutz: Orodispersible mini-tablets are very small tablets (with a diameter of, say, two millimetres), which disintegrate in the mouth immediately, in less than three seconds. This means that the mini-tablet can be given to small children by placing it in the cheek, where it will rapidly disintegrate and release the active ingredient. There is no risk that the tablet will be "swallowed the wrong way". And unlike liquid preparations such as juice or drops, there is no chance of anything dripping out of the corner of the mouth. Just as with liquid preparations, mini-tablets allow the exact dose to be provided to suit the

Expert interview - new pharmaceutical forms on the advance

patient's age. Most drugs also have a better shelf life in solid form.

D-Fluoretten, which melt in the baby's mouth, have been registered in Germany for 15 years. Why is the development of ODX gaining momentum only now?

Prof. Breitzkreutz: The European Regulation "Better Medicines for Children", published in 2007, must be considered a milestone, because that made it mandatory to develop forms of all new active ingredients that would be suitable for children. Orodispersible tablets were helped by the fact that new excipients based on mannitol, with improved properties, have been introduced onto the market, mostly as co-processed finished mixtures, which make tableting simpler. A number of new pharmaceuticals have also come onto the market in recent years, such as orodispersible films with prescription-only ingredients, which has encouraged other

companies to develop their own products or line extensions. Another aspect is the search for cheaper methods of manufacture than the energy-intensive and costly lyophilisation process for freeze-dried platelets, which have been available for a somewhat longer time.

What special requirements do ODX place on production and packaging?

Prof. Breitzkreutz: Orodispersible tablets can be manufactured using the standard equipment for tablet production. Mini-tablet moulds are now available from many different companies. Orodispersible films (ODF), on the other hand, require special production lines, which only a few suppliers have at their disposal. Packing is labour-intensive for all types of ODX, because contact with atmospheric humidity must be prevented, and they often have lower mechanical stability than with traditional drug forms.

What hurdles do ODX still have to overcome in Germany, or in Europe as a whole?

Prof. Breitzkreutz: There are still no standardised pharmacopoeia monographs at a global level, or clear regulatory requirements. How, for instance, do we measure the disintegration of mini-tablets and ODFs? And how do we measure mechanical stability? Which values are still acceptable? There are still no established test methods, which currently leaves the companies with a degree of uncertainty. For the development of pharmaceuticals world-wide it is also essential that the European registration offices agree on standardised tests and specifications with other authorities, e.g. the FDA in the US. That will take some time, but I am confident that it will happen and give further impetus for the ODX products.

NürnbergMesse GmbH
D 90471 Nürnberg

One-stop solution for state-of-the-art technology in injection molding.

Fakuma 2014: SIGMASOFT® Virtual Molding Partners with GKV/TecPart

Emphasizing its closeness to plastic processors and its ability to understand and react to the real needs of injection molders, SIGMA Engineering will exhibit at this year's Fakuma together with the association of technical parts GKV/TecPart. The potential of SIGMASOFT® Virtual Molding Technology to reduce costs and increase competitiveness in injection molding will be highlighted.

14th - 18th Oct. 2014: FAKUMA 2014 Friedrichshafen (D)

Between October 14th and 18th, 2014, SIGMA Engineering GmbH will exhibit at Fakuma 2014 presenting its technology SIGMASOFT® Virtual Molding. This year, the German supplier will share its presentation with the GKV/TecPart Association, thus highlighting its close relation to producers of technical parts, and its ability to understand and to react to the challenges faced by this industry.

TecPart, a Member Association of the German Association of the Plastic Manufacturing Industry (GKV), is the representative of technical plastic part manufacturers in Germany. It gathers mainly small and medium enterprises, as well as component and tier 1 suppliers for the automotive and electrical industries, specialized in design, construction and manufacturing of technical plastic products and tools.

The combined presentation of SIGMA with the processors at TecPart booth de-

monstrates how close SIGMA solutions are to the injection molding processing industry, therefore differentiating from other simulation suppliers. Injection molders find in SIGMA a partner at their same level, with whom they can discuss the challenges faced by modern injection molding industry and develop together effective concepts to increase the productivity and to reduce costs. It is also a signal for OEMs: it is possible to get all relevant information about the current technical possibilities, standards and innovations in injection molding in a single stop, thus efficiently using the visit to the show.

Injection molders in Germany and middle Europe face a number of challenges. OEMs, for example, value now more the ability of suppliers to deliver than the costs per part. This increases the time pressure on the processors. It is no longer possible to iterate several times to find a definitive solution; a mold must function reliably from the first time. This can only be achieved if the processor has a profound understanding of its mold and process, and if both really deliver what is

expected of them - without surprises.

SIGMASOFT® Virtual Molding offers the unique opportunity to completely visualize and predict the outcome of injection molding processes. Working as a "virtual injection molding machine", it reproduces the complex interactions present in the process over several molding cycles. Thus the molder visualizes part defects or mold deficiencies as they occur in reality, and understands what produces them. The performance of a given mold configuration gets thoroughly tested before the mold is built, guaranteeing first-shot success.

Besides the obvious cost benefits, molders get a whole new insight into the molding process: as root causes which produce molding defects or cycle inefficiencies become evident in the computer, it is no longer necessary to build a mold to get to know if a given configuration works or not. The know-how achieved is spread throughout the added-value chain, improving communication efficiency and shortening the learning curve of a new product. Innovation processes are shortened, machines are used for production and not for troubleshooting and the molder's position in front of customers is strengthened, as quotation process and development times become risk-free.

SIGMASOFT® Virtual Molding is continuously developed with the needs of technical molders always in mind. A robust, reliable and accurate tool combines an intuitive and user friendly interface, specifically designed for plastics engineers.

SIGMA Engineering GmbH D 52072 Aachen

No summer break: Registrations for ACHEMA 2015 well under way

**15th - 19th June 2015: ACHEMA 2015
Frankfurt am Main (D)**

In answer to the great demand, ACHEMA 2015 offers as per now additional exhibition space for Pharmaceutical, Packaging and Storage Techniques. Almost eleven months before the start, ACHEMA 2015 is thus well on target. The organisers anticipate similar participant figures as for 2012 when around 3,800 exhibitors and 167,000 participants flocked onto the Frankfurt exhibition grounds. The deadline for submitting lectures for the Congress programme is 31 August 2014.

With less than a year to go before the opening of the world forum of the process industry, scheduled for 15-19 June 2015 in Frankfurt am Main, the organisers already see good grounds for optimism. "We are glad to be able to offer the numerous interested parties additional exhibition space in Pharmaceutical, Packaging and Storage Techniques" says Dr. Thomas Scheuring, CEO of

DECHEMA Ausstellungs-GmbH. In addition to hall 3 the nearby "Forum" is now also available. In recent weeks, a waiting list had to be kept due to the great demand. "Now we can accommodate all customers", Dr. Scheuring is glad to report. In other exhibition groups, such as Instrumentation, Control and Automation Techniques and also Pumps, demand has also already exceeded comparable figures for the previous event. Constantly rising registration figures from China and India are by now taken for granted, but there is also a keen demand from European countries, such as Spain or Great Britain.

For the first time ACHEMA is launching three focal themes which, being multidisciplinary trends, will involve a wide range of exhibition groups. 'BiobasedWorld' will present technologies and solutions relating to the use of sustainable resources and industrial biotechnology. With 'Innovative Process Analytical Technology' the organisers span the gamut from Laboratory and Analytical Techniques through to Automation. Finally,

bridging the gap between zero liquid and low-emission production, 'Industrial Water Management' offers solutions for a wide variety of regional and technical requirements.

These topics also play an important part in the Congress programme, which traditionally gives priority to the blend of science and industrial relevance. Hence, application-oriented themes can be discussed in direct proximity to the respective exhibition halls, thus enabling participants, depending on their interests, to plan their visit to maximum advantage. Panel discussions and guest events round off the new, streamlined format of the Congress programme. "On the one hand, we aim to cover the whole spectrum of themes, on the other hand we also endeavour to eliminate overlaps between parallel thematic strands", is how Prof. Kurt Wagemann, CEO of DECHEMA e.V. puts the challenge facing the planners.

There is no doubt about it: a summer break is not an option for the organisers of ACHEMA. "We are again looking forward to a fantastic event and we're pulling out all the stops to achieve that goal", declare the two CEOs unanimously.

DECHEMA Ausstellungs-GmbH
D 60486 Frankfurt am Main

23rd Fakuma – Innovation Platform for Industrial Plastics Processing

R&D and Production Performance in Plastics

Injection moulding machines, thermoforming technology, extrusion systems, tooling systems, materials and components: the Fakuma international trade fair for plastics processing is remaining true to itself and is foregoing the fashionable trend and hardly intelligible hype surrounding the field of generative manufacturing. The fact of the matter is that there's not really anything to forego, because generative manufacturing options have already been a basic building block of the Fakuma exhibition portfolio for many years. If we eliminate the new buzzword, 3D printing, and replace it with the old, well-known terminology, i.e. "rapid prototyping" in the form of stereo lithography or laser sintering of plastic and metal powders, as well as other similar technologies and processes, we're right back at the heart of the real world of industrial production of prototypes, samples and small lot quantities. And this has nothing to do with a dubious attempt at a petty interpretation of definitions, but rather a great deal to do with a soberly realistic view of the industrial user's benefits in the areas of plastics processing as well as metalworking.

**14th - 18th Oct. 2014: FAKUMA 2014
Friedrichshafen (D)**

3D printing is long since reality in the field plastics processing

It's plainly apparent that other trade fair promoters take a different view of things and vehemently pounce on a fashionable issue, which on the one hand is not a fashionable issue at all, and on the other hand lacks any relevance whatsoever to the process sequence. The question arises as to why one or another trade fair venue adds the issue of "3D printing" as yet another victory to their battle honours, without being even vaguely familiar with the subject matter and without being able to offer expert visitors any "genuine" synergies. In any case, private trade fair promoters P.E. Schall GmbH & Co. KG continue to bank on a presentation of the entire process sequence for plastics processing at the Fakuma international trade fair for plastics processing. And as is generally known, this begins with product development, carries on through tool and mould making, opens out into industrial manufacturing in-

cluding quality assurance, and is finished off, for example, with product packaging or further processing in module assembly. This is the world of plastics processing – including process and material flow peripherals.

The State-of-the-Art in Plastics Technology in 23 Sequences and Beyond

When Fakuma opens its doors for the 23rd time from the 14th through the 18th of October 2014, the plastics processing industry will find everything it needs – in the areas of both hardware and software – for efficient, resource-conserving and highly economical, top quality production of plastic products. During the last 22 sequences, Fakuma has constantly challenged itself, optimised its alignment, reinvented itself in certain respects, and has always kept its focus on market requirements and marketing options, as well as its strict nomenclature, and will continue to do so in the future. Worldwide offerings in the field of plastics, as well as special shows and forums, guided tours and the "Blue Competence" presentation which is currently being planned as a VDMA sustainability initiative in the area of plastic and rubber processing machines – Fakuma has a great deal more to offer than just trendy hype.

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

Medical Technology in Focus

Arburg at the Equiplast 2014

- **Special: Electric Allrounder for clean room production**
- **Substitution: COP replaces glass in syringe barrels**
- **Cost-effective: Energy-efficient exhibits equipped for specific applications**

Arburg will showcase two exhibits at Equiplast, which will be held in Barcelona from 30 September to 3 October 2014. At Exhibition Stand C339/Hall 3, visitors from Spain and Portugal will see cost-effective moulded part production with electric and hydraulic Allrounders, both of which bear the Arburg "e²" energy-efficiency label. Sophisticated medical technology products and consumer goods will be manufactured in shorter cycle times and high-precision quality.



Arburg offers Allrounder injection moulding machines with a clean room module for use in medical technology. Also available in light grey. A machine of this type will be on display at the Equiplast. (Photo: Arburg)

29th Sept. - 03rd Oct. 2014: Equiplast 2014, Barcelona (ES)

"At the Equiplast, we will demonstrate how our modular, energy-efficient Allrounder injection moulding machines can be specifically adapted according to the application and the industry, and how high production efficiency can thereby be achieved," says Martín Cayre, Managing Director of the Spanish Arburg subsidiary, describing this year's trade fair attendance.

COP syringes on electric Allrounder

A sophisticated medical technology application will be presented with an electric Allrounder 370 E, which features a clamping force of over 600 kN and a size 170 injection unit. The machine is in the light grey medical technology colour and features a clean air module supplied by Ionstatex above the

clamping unit to ensure clean production conditions. Using a mould from Männer, two 2.35 gram syringe barrels will be produced from the innovative material COP (Cyclic Olefin Polymer) via a side gating with needle type shut off nozzle in a cycle time of around nine seconds. COP has similar barrier properties to those of glass, but it is unbreakable and less expensive to manufacture. As a cyclic olefin copolymer, this material is transparent, biocompatible, blood compatible and only slightly water-absorbent. COP is therefore extremely well suited to the production of syringe barrels, which can e.g. be produced and packaged already pre-filled in a downstream operation.

Efficient production with hydraulic Allrounder

The second exhibit will demonstrate the efficiency of the proven Golden Edition hydraulic machine series. An Allrounder 420 C Golden Edition manufactures mobile phone covers with a single-cavity mould from Hasco. Here, the cycle time is around 30 seconds. Due to the productivity package, this exhibit ensures cost-effective operation and bears the Arburg "e²" energy-efficiency label. The package includes the Arburg Energy Saving (AES) system with variable-speed pump drive and a water-cooled drive motor. In addition, the machine also features a "Clever Mould System", which ensures cost-effective and practical small-series production. This system facilitates efficient and fast mould changes on all injection mould machines with a suitable clamping system.

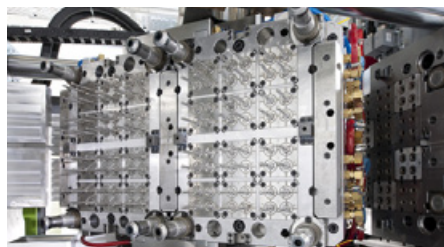
ARBURG GmbH + Co KG
D 72290 Loßburg

Adval Tech FOBOHA at Fakuma Show

14th - 18th Oct. 2014: FAKUMA 2014 Friedrichshafen (D)

FOBOHA (Germany) GmbH has been a regular exhibitor at the Fakuma for many years. An experienced team will advise prospective customers on booth #3212 in hall B3. Consulting often begins with the development of plastic parts, already. Creating added value with a plastic-compatible design and a tailor-made product solution – Adding Value – this is the company's corporate philosophy.

Whether single-component standard moulds, stack moulds or highly efficient cube and twin-cube systems with in-mould assembly: FOBOHA builds made-to-measure



injection moulds with outstanding technical and economic features. Modular mould concepts and the guaranteed interchangeable design of all mould components provide highest availability at shortest cycle times. At the three locations in Germany, Switzerland and China, in total more than 250 premium moulds are built each year for the packaging industry, medical engineering, personal care and the automobile industry.

Multi-component moulds of FOBOHA have set the standard for the production of multi-component plastic parts for more than 35 years. Standard technologies like rotary tables, index- and core back processes are used. The biggest built cube mould ever has 192 cavities per parting line and requires a clamping force of 8,000 kN.

Stack moulds provide uncompromising quality and a high degree of efficiency. The competence centre in Muri (Switzerland) builds precision moulds with maximum output which meet the most stringent requirements for producing thin-wall packaging items. Exchangeable mould insert allow the use of base moulds for different products, for example the production of containers with different heights and identical container opening. Innovative cooling technology and selected coatings guarantee the shortest possible cycle times.

FOBOHA GmbH D 77716 Haslach

Compact solutions for research and development

CPhI Worldwide 2014 - Bosch presents pharmaceutical laboratory equipment portfolio

- FHM 1000: modular filling device for laboratories and clinical trials
- Compact laboratory devices for processing solid pharmaceuticals: Solidlab 1, Hüttlin Mycromix and Manesty Xpress 100
- Modernized pharmaceutical laboratory in Schopfheim, Germany offers customers equipment for testing purposes

**07th - 09th Oct. 2014:
CPhI Worldwide, Paris (F)**

At CPhI Worldwide from October 7 to 9, 2014, Bosch Packaging Technology, a leading supplier of process and packaging technology, focusses on compact laboratory systems and showcases equipment for processing liquid and solid pharmaceutical dosage forms. Exhibits include the FHM 1000 laboratory device for liquid pharmaceutical filling operations as well as three machines for mixing, granulating, coating and tablet pressing from the portfolio of the product brands Hüttlin and Manesty. Thanks to their space-saving and modular design, the laboratory device Solidlab 1, the high-shear mixer granulator Mycromix and the tablet press Manesty Xpress 100 are especially suitable for research and development purposes. The devices for the production of solid pharmaceuticals are available to customers for tests in the modernized and expanded Hüttlin laboratory in Schopfheim, Germany.

Modular filling system for laboratories

With the FHM 1000 series for liquid pharmaceutical filling operations, Bosch presents semi-automated, modular laboratory devices for pharmacists as well as for the application in laboratories and early stages of clinical trials. The series currently consists of four modules: the Human Machine Interface (HMI), the filling module with a peristaltic pump, the weighing module and the needle movement. The HMI is the device's center-

piece, controlling all automatic processes such as in-process control (IPC) filling and weighing, while the containers are manually fed and removed. Further filling modules are planned to offer additional flexibility, for instance a rotary slide piston pump. Moreover, the FHM series significantly facilitates the design of experiments (DoE) for customers by comprehensively recording trial parameters, while also enabling easy scale-up to production systems.

Process variety and space-saving design

For each step in the processing of solid dosage forms, Bosch also presents several systems of its product brands Hüttlin and Manesty. The laboratory device Solidlab 1 ensures maximum performance on the smallest possible space and handles batches from 0.05 to 2 kilograms. The machine enables the mixing, drying, granulating and coating of small particles and pellets in the fluid bed module and tablet coating in the coater module. Thus, the modular laboratory equipment can run up to eight processes on one machine. Both modules are operated via a mutual and integrated air handling and control system.

Hüttlin Mycromix, the smallest high-shear mixer granulator in the laboratory equipment range, is also being displayed at CPhI. The machine is suited for research and design purposes and handles batches from 0.1 to 3.5 kilograms. The bottom drive unit Hüttlin Gentlewing ensures highly homogeneous mixing qualities for granulates. All processes can be easily transferred to pro-

duction equipment via scale-up.

As far as tablet pressing is concerned, the compact and mobile Manesty Xpress 100 with data acquisition software provides an excellent opportunity to evaluate new tablet formulations. A range of flexible turret options ensures the production of clinical trial batches. Using the same "mpower" operating software as larger production-scale machines of the Manesty Xpress series, the Xpress 100 allows for better comparison of test results.

Research and pilot operations for solid dosage forms

The expanded and modernized Hüttlin laboratory in Schopfheim, which was inaugurated in February 2014, is also committed to the production of solid dosage forms. The facility combines the pharmaceutical portfolio focus areas of the Bosch Packaging Technology sites Schopfheim and Waiblingen in Germany with the British site in Knowsley in an area of more than 600 square meters. In the expanded centre of competence, ten machines from the Hüttlin and Manesty product portfolio, as well as from the site in Waiblingen, are available to customers for tests and the development of formulas and processes. The wide range of equipment covers all process steps both in lab and full production scale of solid dosage forms, including the necessary analytics: from mixing, drying, granulating and coating of fine particles and pellets to pressing and coating of tablets and filling of capsules.

Bosch Packaging Technology D 74554 Crailsheim

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cleanroom online / W.A. Schuster GmbH · Mozartstrasse 45 · D 70180 Stuttgart · Tel. +49 711 9 64 03 50 · Fax +49 711 9 64 03 66
info@reinraum.de · www.cleanroom-online.de · GF Dipl.-Designer Reinhold Schuster · Stgt, HRB 14111 · VAT DE 147811997

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