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Europe's first Academic Cleanroom Engineers complete their studies at Graz University of Technology

Cleanroom Pioneers

The first and only study programme for cleanroom technology in Europe was launched two years ago when industrial partners, the Styrian Human Technology Cluster and Graz University of Technology joined forces. Now Europe has its first Academic Cleanroom Engineers. Oriented to the requirements of the business world and industry, the programme has special features that have impacted its development and implementation.



Cleanroom pioneers in demand

Cleanroom technology is required in almost all areas of business involved in production and processing as well as in many services and the health care sector, which has resulted in its ongoing technological development. The cleanroom market is one of the fastest growing markets, and there is great demand for qualified cleanroom engineers. Twelve experts have just completed the four semester study programme in cleanroom technology at Graz University of Technology and are well prepared for a career in this area. The programme is part-time, allowing students to work alongside their studies. Johannes Khinast, head of the study programme: "Successful participants in the programme have obtained the perfect skills to apply current technologies as well as to design and implement new complex developments."

An exemplary initiative

On the initiative of Josef Ortner, owner of Ortner Cleanroom Engineering, and Johann Kurz, former departmental manager in the Federal Ministry of Health, Graz University of Technology and subsequently Johannes Khinast, head of the Institute of Process and Particle Engineering, were approached by the industry with the idea of a scientifically sound academic educational programme for cleanroom technology. Christine Stöckler-Penz, head of Life Long Learning at Graz University of Technology and responsible for administration of the programme, explains: "What was special about the design of this programme was that we developed it along with 13 industrial partners, thanks to whose support it was possible to establish the scientific programme." The programme was also funded by the "Forschungskompetenzen für die Wirtschaft"

Cleanroom Pioneers

(Research Competencies for the Economy) programme of the Austrian Research Promotion Agency (FFG). Robert Gfrerer, former director of the Styrian Human Technology Cluster and currently CEO of Ortner Cleanroom Engineering, also played a significant role in developing this programme and talks of a “paradigm shift in cooperation between the partners.” According to Gfrerer, “up to now, companies have not been involved in the process of how higher educational offer-

rings are developed and approved.”

State of the art e-teaching

Another special feature of the programme was the large share of e-learning elements. The study programme is the first at Graz University Technology to be consistently offered with different elements of online teaching from podcasts to livestreams. Quizzes were also given online and a virtual platform was set up that contains comprehensive information about cleanroom technology. Stöckler-Penz: “In this way, we

took into account the needs of our students who completed the programme while working full-time.” Successful participants in the study programme receive the title “Akademische/r Experte/Expertin in Reinraumtechnik” (Academic Expert in Cleanroom Technology). Thanks to the success and continued demand from the industry, the study programme Cleanroom Technology will soon be offered again by Graz University of Technology – Life Long Learning.

TU Graz Life Long Learning
A 8010 Graz

Expansion of activities within pharmaceutical sector

Packaging Technology division: Bosch and Klenzaid's plan joint venture in India

- Joint venture expected to employ some 380 associates
- Product portfolios are an ideal complement to each other
- Strengthening of global market presence, especially in liquid pharmaceuticals

Processing and packaging specialist Bosch Packaging Technology and Klenzaid's Contamination Controls Pvt. Ltd. are planning a joint venture in India. Both companies signed agreements to this effect on November 28, 2014. The plan is for Bosch to acquire a 49 percent share in Klenzaid's, an owner-managed company that produces processing, packaging, and clean-room technology for the global pharmaceutical industry. By setting up the joint venture, the two partners aim to extend their global reach, particularly in liquid pharmaceuticals and packaging machines for clean-room environments. The Klenzaid's and Bosch Packaging Technology product portfolios complement each other across the board. In particular, the joint venture will allow the companies to better satisfy Indian customers' growing demand for complete lines from a single source. Based in Mumbai, Klenzaid's generated sales of around six million euros in 2013 and employs some 350 people. Bosch Packaging Technology, which last year achieved global sales of 1.1 billion euros and employs some 5,600 associates worldwide, already has a presence in India through its Verna location in the state of Goa. The joint venture is set to be headquartered in Mumbai and is expected to employ some 380 associates. The plan is subject to the approval of the antitrust authorities. The purchase price for the shares acquired by Bosch was not disclosed.

Better products and services for customers in India

The joint venture is being set up primarily to benefit Indian customers. Klenzaid's will contribute its expertise in clean-room and processing technologies as well as peripheral systems, and Bosch will contribute its strength in innovative filling technologies. Klenzaid's provides customers in the private and public sectors not just with plants, systems, and accessories but also with turnkey solutions: buildings and equipment that a customer can use as soon as they are built or assembled to process and package its particular product. These solutions include laboratories with the highest protection class for use in the field of biosafety.

Profitable growth and value orientation

Friedbert Klefenz, president of Bosch Packaging Technology, said: “We already have a long history of trusted collaboration with Klenzaid's. The company is known for employing excellent people and for providing high-quality products and services. I am delighted at the prospect of a future together.” Hamish Shahani, managing director of Klenzaid's, said: “Joining forces and pooling our resources will give us a stronger starting position in the emerging Indian market. Despite our different regional backgrounds, Bosch and Klenzaid's have a lot in common. Both place great emphasis on profitable growth, innovative strength, reliability, a motivated workforce, and strong value orientation.”

Complete lines from a single source

Klenzaid's is an Indian family-run busi-

ness with a product portfolio that includes laboratory and transfer systems designed to meet clean-room requirements. These machines are indispensable for the sterile production of liquid pharmaceuticals. One of the company's USPs is its ability to supply laboratories that meet biological safety class standards 2-4. Class 4 laboratories have to satisfy the highest safety requirements, such as being able to guarantee the absolute isolation of microorganisms from the environment. Among the company's other strengths are isolators and processing technologies for the production of liquid pharmaceuticals.

Strategically important complement to Bosch's Goa location

Bosch Packaging Technology has been developing, building, and selling vertical and horizontal flow wrapping machines for packaging food as well as filling and sealing machines for liquid pharmaceuticals at its location in Verna since 2012. To date, Bosch Packaging Technology has sold over 1,500 packaging machines to leading brand companies in the food and pharmaceutical industries.

Commenting on the agreement, Dr. Stefan Berns, president of Bosch India, said: “Following the inauguration of our manufacturing unit in Verna, this is the second milestone for our packaging technology business in two years. I am extremely confident that this new partnership will further strengthen our product portfolio and market reach. The activities of both parent companies dovetail perfectly, and our pharmaceuticals unit as well as our customers will benefit immensely from this joint venture.”

Bosch Packaging Technology
D 74554 Crailsheim

Curetis Closes EUR 14.5 Million Extension of Series B Financing

- Curetis wins new investors QIAGEN and LSP-HEF, committing EUR 7 million
- Curetis well financed into 2017

Curetis AG, a developer of next-level molecular diagnostic solutions, today announced it has closed a EUR 14.5 million extension of its Series B financing round, which was originally led by HBM Partners in April 2013. All existing investors - aeris Capital, BioMed Invest, CD Venture, Forbion Capital, HBM Partners, LSP - Life Sciences Partners, Roche Venture Fund, management, a trustee-pool of Curetis employees and private angel investors - participated in the extension financing, investing EUR 7.5 million on a pro rata basis. QIAGEN and LSP Health Economics Fund (LSP-HEF) are joining as new investors, committing a total of EUR 7 million. The financing brings the total amount of equity raised by Curetis AG to over EUR 63.5 million.

In addition, Rudy Dekeyser of LSP-HEF will join Curetis' Supervisory Board, while Hans-Guenter Hohmann will step down after being a Board member for the past six years. Dr. Martin Potgeter, Vice President Business Development of QIAGEN, will take an observer seat on the board as second representative of a corporate investor alongside Simon Meier of Roche Venture Fund and Dr. Karsten Fischer of BioMed Invest.

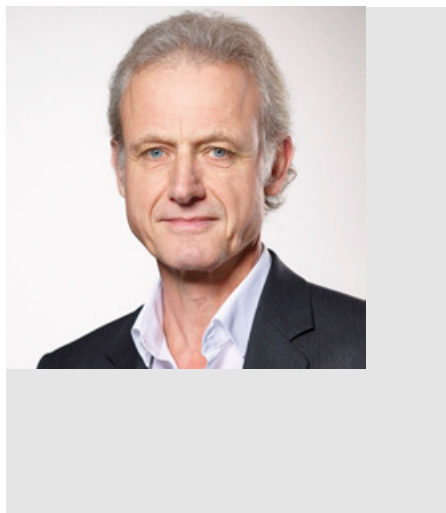
The financing is supported by the achievement of key milestones, e.g. several CE/IVD-marked products, an ongoing FDA clearance trial and a growing commercial distribution network across Europe. The European market introduction of both the Unyvero P50 Pneumonia and i60 Implant and Tissue Infection applications, allowing a faster and

better diagnosis of life-threatening infectious diseases, has shown increasing traction. In addition, the company is in talks with several parties on granting future U.S. commercialization rights and further expanding the commercialization into Asia and other global markets.

„With our unique focus on equity stories that have products with an immediate, strong and clear health economics impact, the investment in Curetis comes quite naturally,“ said Rudy Dekeyser, Managing Partner of LSP-HEF. „The Unyvero solution provides not only better medical outcomes based on more rational antibiotic therapy decisions, but at the same time offers hospitals and healthcare systems substantial savings under ever tighter DRGs. As an example, Unyvero improves the number of adequately treated pneumonia patients and reduces the average length of stay in intensive care units.“

„We are excited to see two new investors joining and further strengthening our syndicate of top-tier private equity funds,“ said Dr. Oliver Schacht, CEO of Curetis. „This provides further evidence of our growth story being an attractive investment case. With the current cash on hand, we are now financed well into 2017. The funds will be used to continue our commercial roll-out in Europe, the FDA trial and to prepare our company for attractive future exit opportunities such as strategic partnerships, M&A or an IPO.“

Curetis AG
D 71088 Holzgerlingen



Dear subscribers,

now the new year has started with coldness and snow. A very good start in our opinion and we wish you all the best – health, success, love and luck.

I am looking forward ³@a good cooperation in 2015. Maybe we will meet us at one of the fairs in Stuttgart, Frankfurt or Nuremberg.

Kind regards


Bernd Schuster

Kimberly-Clark Professional launches engagement platform for Laboratories

It all adds up...

The Scientific division of Kimberly-Clark Professional, a leading provider of hygiene, safety and productivity solutions, has launched a new platform to assist laboratories in the engagement of employees in Green, Lean and Protection issues. Hosted on the company's Exceptional Laboratories online portal the platform offers free engagement tools and services to distributors and laboratories to complement its KIMTECH Branded personal protection equipment.

A simple, yet engaging video outlines the programme: 'It all adds up... to Exceptional Laboratories': <http://bit.ly/XLvideo>.

„We believe people are key to a company's success and simple engagement solutions really do amount to solid financial benefits. Evidence provided by Aon Hewitt's 2013 Trends in Global Employee Engagement report suggests that every one percent increase in employee engagement indicates a 0.6 percent growth in sales,“ said Kristin Barrett, KIMTECH Category Manager for Europe.

„With this in mind, we realized we needed to change the conversation between PPE distributors and laboratories. Many laboratories remain focused on price when purchasing protection equipment but control of waste, contamination, and health & safety risks often have greater impact on costs over the long term. By helping our customers engage their employees in these matters, laboratory managers will be able to run healthier, safer and more productive labs in the most environmentally sustainable way possible,“ continued Barrett.

Distributors, laboratory managers and laboratory staff at all levels will find links to downloadable tools and services designed specifically to increase knowledge and simplify participation in personal and environmental protection, the reduction of contamination risk in the laboratory, and regulatory compliance.

Kimberly-Clark Limited
ME19 4HA Kent
Vereinigtes Königreich Großbritannien und Nordirland

The Technical Competence Center at Gerresheimer Regensburg GmbH has won an "Excellence in Production" award.

German Tool-Maker of the Year Award 2014



This year's Excellence in Production Awards were presented in Aachen on November 4th, 2014. The prestigious venue was the Coronation Room at Aachen City Hall. The overall winner and therefore "Tool-Maker of the Year 2014" was Gerresheimer Regensburg GmbH's Technical Competence Center. It also won an award in the category of "Internal Tool-Maker with more than 50 Employees. Gerresheimer is regularly among the Excellence in Production finalists, and it won categories in 2009 and 2011.

11 finalists were selected from the 292 companies that applied for the famous Tool-Maker of the Year Awards in 2014. In the selection process, the jury uses the Aachen Tool and Mold-Making Management Model (AWFM) for objective evaluations based on measurable facts. The first stage of the selection process involves checks to establish whether the companies satisfy the minimum requirements for the competition. Then, those companies that do satisfy the requirements are audited by teams of experts. The audit weighting is 20% for financial performance, 10% for customer-related performance, 5% for product-related performance, 20% for processes, 25% for resour-

ces, 15% for organization and 5% for management.

Gerresheimer Regensburg manufactures tools and automation systems for the pharmaceuticals and medical technology sectors. The typically stringent quality and development speed requirements in these sectors are met by way of integrated project management at the company's Technical Competence Center (TCC). The TCC can autonomously develop fully integrated systems, from injection molding machine and tool technology to automation, and it also provides a comprehensive range of tool-making services. The service portfolio includes series production, production equipment design, process development, project management, quality planning, tool making automation technology and production initiation/pre-series production. Two further TCCs cater to the needs of the US and Asian markets.

The jury was particularly impressed by Gerresheimer's very detailed and standardized order processing concept which is more or less unique in the tool-making industry. The company's high audit scores also reflected its excellent performance in the hard machining of complex workpieces. The TCC has a comprehensive range of visual and tactile measuring equipment which can be supplemented by non-destructive computer tomographic measurements if necessary.

The awards were presented by the RWTH Aachen University's Laboratory for Machine Tools and Production Engineering (WZL) and the Aachen Fraunhofer Institute for Production Technology (IPT) for the eighth time in 2014. Representatives of industrial and engineering associations, the scientific, business and political communities formed the expert jury. All tool and mold manufacturing companies in Germany, Switzerland and Austria are eligible to apply for the Tool-Maker of the Year Award. A differentiation is made between independent companies (external tool makers) and company departments (internal tool makers) and company size. In 2013 the limit was reduced from 100 employees to 50 employees.

Gerresheimer AG D 40468 Düsseldorf

Safe Label Material for Plastic Drug Packaging

Increase Medicine Safety with Low Migration Labels

In addition to glass containers, pharmaceutical manufacturers are increasingly using primary containers made of plastics. In the case of soft plastics, there is a risk of migration. Schreiner MediPharm develops customer-specific, low migration labels for plastic containers that do not compromise the medicines contained in them. Therefore, special adhesive systems, materials, and inks were qualified to develop the ideal label design for each particular plastic container.

Unbreakable, cost-effective, convenient: Increasingly, primary containers made of plastics are used in the pharmaceutical industry. However, soft plastic materials have a drawback: Molecules from solvents and other substances contained in inks, adhesives, and film materials might possibly migrate through the packaging over the years. For example, eye drops in soft plastic bottles

might be contaminated or their effectiveness impaired.

To ensure that harmless materials are used for each particular label design, Schreiner MediPharm conducted a study with a renowned, independent test institute to analyze, calculate, and evaluate the migration tendency of various label compositions. The results make it possible to specifically deve-



lop low migration label solutions for each application, without any major expenditure of time or investment by the pharmaceutical manufacturer. Furthermore, the use of verifiably harmless low migration labels increases the probability of a smooth approval from the respective drug administration authorities and ideally the approval process can be shortened.

Schreiner MediPharm, a business unit of
D 85764 Oberschleissheim

Connect 2 Cleanrooms announce the appointment of their new Senior Contract Manager, Mike Enright



Connect 2 Cleanrooms Ltd is an award winning industry leader in creating modular cleanroom solutions for critical environments, both in the UK and across the world. The Company recently introduced a modular pre-engineered version of the FM Approved Puracore® Aluminium Honeycomb cleanroom wall and ceiling panel system as an additional structural option to their

hard wall modular cleanroom range.

As an alternative to on-site traditional installations, Puracore® and all its benefits will now be available to those seeking to have off-site pre-engineered solutions.

Mike Enright, Senior Contract Manager has joined the Connect 2 Cleanrooms team to develop the Puracore® range. Mike brings with him 30 years' experience within the cleanroom industry and has championed positions such as sales, design, Project Management throughout his career. He has worked with Puracore® manufacturing for many years.

Mike has managed successful high end cleanroom / laboratory facilities installations from small projects to multi million pound

commercial constructions of hospitals, pharmaceutical, aerospace, fibre optic and electronics companies all over the world including - Malaysia, China, Singapore, Hong Kong, the Middle East and Europe.

The new role of Senior Contracts Manger underpins the continued growth of the Company. The recent addition of the FM Approved Puracore® range along with the experience that Mike Enright will bring to the role ensures that Connect 2 Cleanrooms is continually offering customer choice whilst understanding market needs.

Joe Govier, Managing Director of Connect 2 Cleanrooms said he was delighted to welcome Mike on board.

„Customer relationship building is paramount to our company. We appreciate that certain purchasing decisions can take time and there are many formalities to consider. Mike's experience and knowledge within the cleanroom and laboratory industry makes him the ideal person to be that first point of contact and the person that can visit your site to offer advice, solutions and support.”

Mike Enright Senior Contract Manager at Connect 2 Cleanrooms added, „I am thrilled to be joining the Connect 2 Cleanrooms team as Senior Contracts Manager. I have worked for and with many Cleanroom design and construction companies over the years and now have been totally refreshed by Connect 2 Cleanrooms clear, honest core values and team approach. The opportunity to be part of Connect 2 Cleanrooms and help develop this challenging market is really exciting. I look forward to working closely with the team, clients, and all new potential customers.”



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At Exhibition Centre on the Rhine from 6 to 9 October 2015

EuroMold moves to Düsseldorf

**06th - 9th October 2015:
EuroMold 2015, Duesseldorf (D)**

EuroMold, World Fair for Moldmaking and Tooling, Design and Application Development, is moving from Frankfurt to Düsseldorf. For the first time now the event running from 6 to 9 October 2015 will be held at the exhibition centre on the Rhine. This news was announced today by Managing Directors of the organiser DEMAT GmbH, Diana Schnabel and Dr.-Ing. Eberhard Döring. Annually, the trade fair brings together over 1,000 exhibitors and some 55,000 visitors from throughout the world.

One key reason for the switch in location is the new direction and more flexible approach of EuroMold at one of Germany's most important and state-of-the-art exhibition centres. Düsseldorf is also located centrally in one of the strongest economic metropolitan regions in Europe; its importance

as the regional capital of Germany's most populous federal state North Rhine-Westphalia and, not least, the great exhibition expertise of Messe Düsseldorf have convinced us to hold EuroMold at Düsseldorf Exhibition Centre. Commenting on this move Diana Schnabel said: "Messe Düsseldorf is one of the most successful trade fair companies with an excellent reputation, especially in the field of plant, machinery and equipment trade fairs. Particularly in terms of the international spread of exhibitors and visitors Messe Düsseldorf leads. I am certain that EuroMold customers can greatly benefit from the know-how and the well-known quality service of our new partner." Werner M. Dornscheidt, CEO at Messe Düsseldorf GmbH, adds: "As a guest event EuroMold is the perfect complement to our trade fair portfolio. With its line-up it offers the ideal bridging link to our plastics fair as well as to the events in our metal trade fair quartet GIFA, METEC, THERMPROCESS and NEW-



CAST and with its concept it closes the gap between industry designers, product developers, processors, suppliers and users. For EuroMold the Düsseldorf location means not just stability but also added impulses thanks to the synergies for exhibitors and visitors."

A large proportion of EuroMold trade visitors come from the automobile industry (34%), mechanical engineering (26%), the electrical and electronics industry (11 %) as well as medical technology (10%) - sectors that are at home in North Rhine-Westphalia (NRW). At EUR 599.8 b NRW generated 21.9% of German GDP in 2013 ranking it very much top among all German federal states. North Rhine-Westphalian plant and machinery construction alone occupies national pole position - almost one in four German machines is produced here between the Rhine and the Weser. Over 1,600 mechanical engineering operations in the state employ just under 200,000 people. With some 800 firms and over 200,000 employees the automobile industry and its upstream suppliers is one of the strongest sectors in North Rhine-Westphalia. The electrical industry is also represented in the state of NRW across the entire spectrum and forms an indispensable part of the value added chain. Many of its 1,100

EuroMold moves to Düsseldorf

companies employing 155,000 people lead on the world market with their innovative products.

When it comes to the international spread of exhibitors and visitors at investment goods fairs, Messe Düsseldorf GmbH ranks N°1 worldwide. At its own events in

the expert fields of plant, machinery and equipment some 70% of exhibitors and 60% of trade visitors come to the Rhineland from abroad and customers from a total of 162 countries attend trade fairs in Düsseldorf. Representations in 135 countries (72 foreign representations and subsidiaries) form the global network of the corporate group. The central location of Düsseldorf in the most densely populated region of Europe (the

catchment area is home to 150 m people within a 500 km radius), its good traffic connections and comprehensive range of hotels and restaurants make travelling to and from the city and staying here very pleasant.

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

Suppliers are vigorously driving development in the field of diagnostics



COMPAMED is continuing on its road to success

Autor: Klaus Jopp, freelance technical author (Hamburg)

**16th - 19th November 2015:
COMPAMED 2015, Duesseldorf (D)**

There is a lot of potential for optimising treatment processes in optical methods

In parallel to the world's largest trade fair, the MEDICA, with more than 4,800 exhibitors, the COMPAMED in Düsseldorf, the largest and most important international supplier trade fair for medical technology is continuing on its road to success. With 724 exhibitors, it was also able to reach a new record this year. The interest of professional visitors is also great. From a total of almost 130,000 professional visitors that came to the MEDICA 2014 (underway: 12 - 15/11) and to the COMPAMED (underway: 12 - 14/11), around 17,000 flowed into the halls of the COMPAMED (halls 8a and 8b). This time, one trend emphasis there included optical methods, which for years now have been entering into the equipment and product market in the medical technology industry and have been increasingly becoming a key "guarantee of success".

"Among other things, a reason for this includes the continuously growing requirements for accuracy and precision that can be effectively met with the aid of optics, photonics and lasers," confirmed Dr. Thomas R. Dietrich, managing director of the IVAM association for microtechnology. Furthermore, optical processes, by means of minimally invasive diagnostics or imaging, for example, have proven to be particularly patient friendly. Therefore, optical micro-components have in the meantime become indispensable for the production of diagnostic equipment, which is successful on the market. A new development of the Fraunhofer Institute for Ceramic Technology and Systems (IKTS) impressively shows this by indicating doctors in only 90 seconds if prostate tissue is

cancerous or not. Up until now, laboratory technicians had to prepare razor-thin tissue sections from biopsy samples - cumbersome work that takes at least an entire day of effort. Afterwards, the samples get passed on to a pathologist, who examines them under a microscope - frequently with unclear results since differentiating between benign and malignant tissue is difficult, even for experienced doctors. In the future, this examination will be simpler, more precise and quicker: "The doctor lays the extracted tissue sample onto a supporting platelet, inserts this into the device, presses a button, and obtains a reliable indication of if the tissue is benign or malignant within one and a half minutes," explained Dr. Jörg Opitz, scientist at IKTS. "The method is based on the auto-fluorescence emitted by human tissue because it contains fluorophore," Dr. Jörg Opitz further explained. These molecules light up for a short time if a certain type of light falls on them. At the beginning of the measurement, an intermittent laser pulse stimulates the fluorophores, which in turn emit light themselves. How the fluorescent radiation decreases is different in the case of benign or malignant tissue and this is the key to the new "flash analysis", for which there is already a prototype unit available. It has already passed two clinical trials successfully.

The measurement system "usurf expert" is also based on optical effects, having been presented at the COMPAMED, among other things, by the company NanoFocus for the detection of surface roughness. "Our device works like a 3D microscope. An optic filter in the optical path ensures that only beams from the focal point are depicted," explained Dr. Jürgen Valentin, chief technical officer at NanoFocus AG. Particularly concerning joint implants, there are special requirements with regard to medical compatibility, durability and wear. The optical-confocal 3D surface metrology by NanoFocus is suitable for

surface analysis as well as production control and product development. Thereby, metal, plastic and ceramic surfaces alike are reliably registered, and scratches, surface imperfections or surface roughness values are displayed as colour-highlighted topographies.

Lenses based on a model of the human eye

At the COMPAMED, the Swiss company, optotune, presented, among other things, quick, focus-variable lenses for 3D microscopy for the field of ophthalmology, making diverse bio-imaging applications possible. "The array of applications ranges from confocal microscopy to multiphoton imaging, all the way to optical coherence tomography," said Dr. David Leuenberger delightedly, sales manager at optotune. The adaptive optical components made of elastic polymers are based upon an imitation of the human eye and could result in a revolution. By applying an electrical voltage, it is possible vary the curvature of the soft lenses. In this way, optical systems become smaller, more inexpensive and quicker. In the case of certain applications, it is possible to reach up to 30 volume scans per second.

Road map for the standardisation of point-of-care diagnostics

With the German standardisation road map "Mobile Diagnostic Systems", the Association for electrical engineering, electronics and information technology (VDE) has pointed out the special significance of "point-of-care testing". That applies to countries such as Germany with highly developed medical care because people are getting older and older, lack of doctors in the countryside is increasing - by 2021, 42 percent of all general physicians are going to retire - and patients do not want to wait for days for a diagnosis. On the other hand, in emerging nations, the

COMPAMED is continuing on its road to success

route to the nearest doctor or laboratory is frequently very far – here, it is hardly possible to come again after a few days. Thanks to mobile diagnostics, the time span involved to get results, which takes between one and five days, can be reduced to 15 to 30 minutes. “In addition, the related equipment has to be small and mobile, be able to be used in a decentralised manner, as well as be easy to operate,” explained Dr. Joerg Schickdanz, managing director of QIAGEN Lake Constance. With the road map, the harmonising the standardisation process should be set into motion in order to clarify technical and legal issues. Without question, the individual measurement of samples, omitting laborious sample preparation, and the direct available of measurement results lead to various fields of application, ranging from the operating theatre to patients performing measurements on themselves in a household environment. Of course, until it reaches that point, there are still a lot of technological and regulatory challenges to overcome in the area of method development, validation and verification. The outbreak of Ebola has shown how urgent point-of-care solutions are needed. Examination of the potentially ill would be ideal at airports within a period of 30 minutes for example. Currently, travelers who are suspected of having the disease have to spend three days in quarantine.

Innovative back training with wearables

Wearables are also a topic that is gaining in significance, meaning measurement technology worn on the body that has particularly been used to determine vital parameters. In this field, the make-to-order manufacturers Cicor and Hocoma have started a new chapter. Hocoma is a global market leader in the development, manufacturing and marketing of robotic and sensor-based equipment for functional movement therapy. The training device, Valedo, detects the movement of the torso with the aid of two Bluetooth sensors and transfers the data into a gaming world. “In this way, the test subjects obtain real-time feedback on if they have done the exercise correctly,” said Monica Thomann, responsible for marketing and communication at Cicor. Each sensor uses a 3D gyroscope, a 3D accelerometer and a 3D magnetometer to detect movement on a 360-degree basis. At the third Devicemed award ceremony, with this development, Cicor won the prize in the customer-manufacturing category. “Up until now, it was relatively difficult for competitors here. Therefore, we are pleased with the increase of more good submissions, particularly in the area of make-to-order production

that is gaining more and more significance in the medical technology field,” commented Peter Reinhardt, editor in chief of the trade magazine Devicemed that had bequeathed the award during the COMPAMED.

In light of this, Gerresheimer Medical Plastic Systems has established pilot production at its technical competence centre. Pharmaceutical and medical technological products go through a long and complex approval process, for which small quantities have to be produced for clinical samples or stability batches, etc. For all small-batch production runs, there are eleven injection-moulding machines available with a closing force of 65 to 420 tons, among which there are 2 two-component injection moulding machines weighing 120 to 200 tonnes. In addition, there are project-specific assembly systems, such as joining machines, gluing devices or systems for ultrasonic welding. In addition, there is a class-8 clean room. A management execution system (MES) ensures the efficient, quick and economic production. “Small batch production makes development samples and clinical samples, all the way to small series, also in small quantities between 500 and 1000 pieces,” explained Ulf Kirschner, key account manager at Gerresheimer Medical Plastic Systems. Weak points are recognised in the project early on, can be optimised during the development process, and these optimisations can flow into the series.

Packaging machines are getting more and more intelligent

In the case of packaging for the pharmaceutical and medical technology industry, all-round concepts are also in demand. The company Harro Höfliger offers solutions along these lines. “Within a small area, we link filling, dosing and assembly technologies and combine them with sealing and laminating processes,” commented Dieter Habertzettl, division leader for diagnostics at Harro Höfliger Verpackungsmaschinen GmbH. Based upon the technology platform “Varioflex”, the company creates customer-specific solutions that also meet various clean room requirements. Thanks to their flexible concept, the machines are also suitable for companies that require packages for new developments and want to establish corresponding processes.

Progress can frequently be found in the little things: Weidmann Medical Technology has developed containers for laboratory samples with an RFID chip integrated inside of them. The so-called tubes make contact-free data acquisition possible along with seamless traceability. “Processes with bar-code labels or dot-matrix coding had frequently been associated with difficulties up until this

point. Therefore, we have embedded chips into the material of the tubes,” emphasised Kurt Eggmann, director of sales and marketing at Weidmann. The RFID elements are capable of saving, updating and overwriting larger amounts of data. In addition, they can resist temperatures as low as minus 20°C. This is an advantage since many sensitive samples have to be stored in a refrigerated environment.

There is still a lot of research required for 3D printing in the field of medical technology

Hearing devices that are custom manufactured for individual patients by means of 3D printing are already available on the market in large quantities. “Also in the field of dentistry, 3D printing has already reached the point of being implemented in production,” confirmed Carlos Carvalho, in charge of process and material development at envisionTEC. It cannot be said that the company is not involved. After all, it supplies the 3D bioplotter, a related unit that can process a variety of biomaterials – ranging from soft hydrogels to polymer melts, all the way to hard ceramics and metals. In addition, there are two versions for production and one version without the frills for development. At the COMPAMED 2014, the 3D bioplotter was bequeathed the Ad-hoc Award by the Devicemed editorial staff for the very first time. “For example, we use thermoplastic synthetic materials for products that should be capable of being metabolised by the body within three to six months as well as ceramic pastes for those that should dissolve within the body only after two to three years,” commented Carvalho. The body’s own cells can be dissolved in hydrogels. This is an approach to printing “spare parts” for the human body. “In the near future, we will be capable of printing bone material and also skin over the medium-term. In 20 to 30 years, it may be then possible to produce organs in the way,” predicted Carvalho. Currently, the 3D printing hype in the medical technology industry has somewhat faded away – a lot of this is still stuck in the research stage and has just started to spread at universities. Nevertheless, already today, it can be determined that the topic of 3D printing will be grabbing attention repeatedly at the COMPAMED in the years to come.

The next COMPAMED is taking place from 16 to 19 November 2015 – over a period of four days for the first time (being held at the exact same times as the worlds largest medical trade fair, the MEDICA) and in the future always over the days running from Monday to Thursday.

Adapting cleaning baskets and workpiece holders to the process

Cleaning effort – a question of the right basket

Whether 1000 microns, 800 microns, 600 microns or less – to meet defined particulate cleanliness requirements in a reliable and economical way, poses a challenge for many parts manufacturers. The cleaning baskets are one aspect that is often forgotten or considered too late when cleaning processes are planned. Although the cleaning baskets and workpiece holders have essential effects on quality, effort and costs of the parts cleaning as well as on handling and logistic processes.

Autor: Doris Schulz

The demand for a high throughput while maintaining defined cleanliness requirements can only be met with an optimal adapted cleaning process. The key factors here include the chemistry, temperature, processing time and mechanics like ultrasonic sound, spraying and injection flood washing.

From efficiency point a process is optimal, when the use of chemicals, temperature and time can be reduced to a minimum – thus the required result can be reached with high throughput within short time and at the lowest possible costs.

This requires that the effect of the mechanical processes arrives to virtually 100 percent at the parts that have to be cleaned and that the potential of the machine can be fully used.

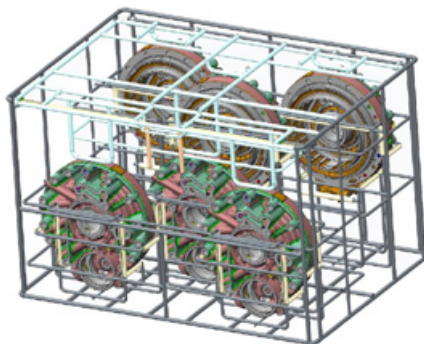
Now the cleaning basket comes in. It decisively affects not only the quality, time and costs of cleaning but also affects the parts handling for upstream and downstream production steps, the logistics as well as the process automation.

Basic requirement – good parts accessibility

Regardless of whether parts are cleaned in bulk or set goods, both the cleaning medium and the mechanics can only exert their effect when the parts can be reached freely. Therefore a good all-round accessibility is a basic requirement that a cleaning basket has to meet. This is achieved by the use of rounds and the avoidance of closed corners and edges. The open design also allows that the particles can be washed out of the basket quickly and effectively and can be lead back to the filtration. When drying by hot air, the required time is significantly reduced due to the good accessibility of the parts. When it is about the bath life time, the all-round accessibility also offers non-cash benefits, because it reduces the carryover of cleaning media. This leads to higher bath changing intervals and therefore a higher availability of the machine.

Efficient cleaning baskets – an interaction of lots of factors

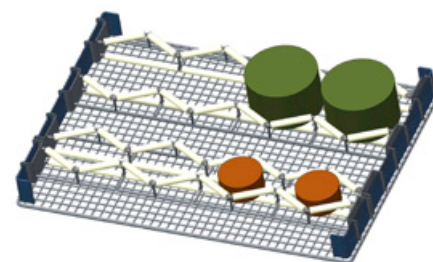
To adapt the cleaning basket to the pro-



Good parts accessibility is achieved by the use of rounds and the avoidance of closed corners and edges. The open design also allows that the particles can be washed out of the basket quickly and effectively. (Image source: Metallform Wächter)

cess and the cleanliness requirements at its best, moreover different parts and system-dependent information have to be considered. According to Metallform the relevant component factors are the geometry of the parts and the material from which they are made. The question of critical areas on the parts also plays an important role. Moreover the quantity of workpieces, that have to be placed in a workpiece holder as well as any existing parts families like box-shaped or cylindrical workpieces are incorporated in the design process. Important information regarding the cleaning machine are the batch size, the supply and the fixing of the batch in the working chamber, the goods movement during the process and the used media. For optimal integration of the cleaning baskets in the individual operational processes, information about the processes upstream and downstream to the cleaning, the therefore necessary parts handling and already existing cleaning baskets are required. It is also helpful for the manufacturer of cleaning baskets to know in which industry a company is working.

Based on this information, Metallform designs cleaning baskets with the latest CAD technology, which redound to a reliable, cost-efficient and resource efficient parts cleaning. This includes for example the optimal positioning of the parts in the workpiece holder. This allows a selective treatment of for example bore holes and undercuts without affecting on the sensitive areas. In doing so the adjustment to the parts movement, for example lifting or rotation, ensures that the



Flexible solutions with parts specific inserts – here with damage prevention made of Teflon lagging – and multi-purpose outside racks, achieve significant cost reduction for the investment in cleaning baskets. (Image source: Metallform Wächter)

parts are securely held and aren't damaged.

The minimised contact area between the part and basket which is achieved by the use of rounds, reduces the risk that particles or cleaning media stick to the parts respectively that the workpieces don't dry completely on the contact areas and get spots. Costly reworks and expensive rejects can be minimised.

Flexibility thinking ahead

A criterion that also runs into the design is the variety of the parts that have to be cleaned respectively a quickly changing range of parts. For those applications Metallform develops flexible solutions which achieve significant cost reduction for the investment in cleaning baskets and still high process reliability. They are composed of parts specific inserts and multi-purpose outside racks and adjustable lids.

Integration in the internal processes

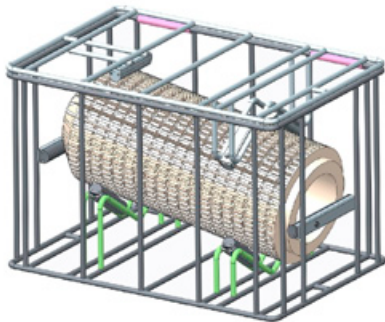
When it's about efficient processes, also the costs for internal and external transports as well as the required parts handling have to be considered. The trend today is to use cleaning baskets also for different transport tasks. In this way unnecessary work and allocation of personnel, costs for the cleaning of storage and transport boxes as well as the contamination or damage of parts while transferring them can be avoided.

The hereby relevant factors are also included in the design. At the same time the

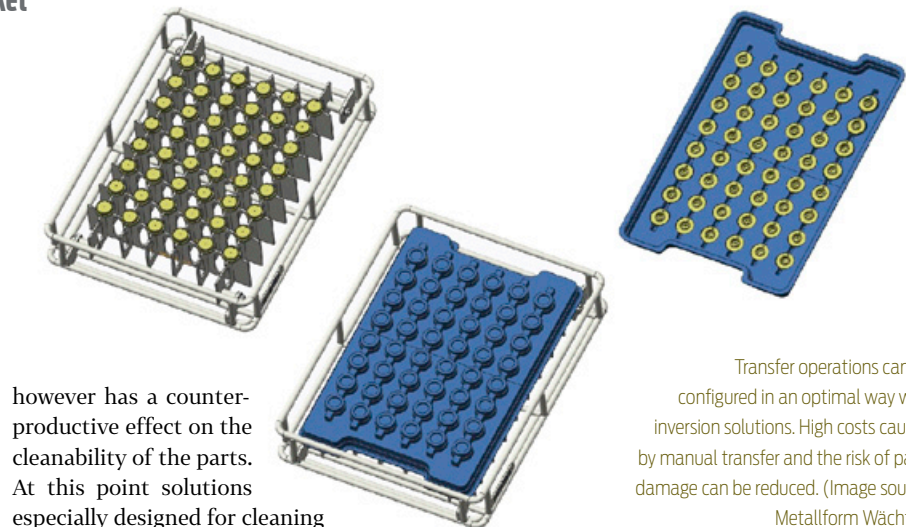
Cleaning effort – a question of the right basket

coordination between all baskets that are used in the production, for example for the manufacturing, cleaning, transport to subsequent processes, logistics and assembly allows that transfer operations between the individual production steps can be reduced. Transfer operations that can't be eliminated, can be configured in an optimal way with inversion solutions which are exactly adapted to the individual task.

The automatic loading and unloading of workpiece holders requires an extremely high level of accuracy in the dimensions and position of the parts in the basket. This often seems to be practicable only with a clo-



Cleaning medium and the mechanics can only exert their effect when the parts can be reached freely. (Image source: Metallform Wächter)



Transfer operations can be configured in an optimal way with inversion solutions. High costs caused by manual transfer and the risk of parts damage can be reduced. (Image source: Metallform Wächter)

however has a counter-productive effect on the cleanability of the parts. At this point solutions especially designed for cleaning enable an improved cleaning quality and a higher throughput.

Selection of material and workmanship

The material that is used for the cleaning baskets must not affect the cleaning. With a water based cleaning agent for example, metallic protective coatings can be detached from the basket and can lead to an impairment of the cleaning result and cause problems with the wastewater treatment. A material that is suitable for all cleaning media

is stainless steel. Furthermore the cleaning baskets should not have any sharp edges or loose wire ends, by which employees can be injured.

An exact consideration of the cleaning basket pays off, as it contains a great potential to make cleaning processes more reliable and efficient.

Metallform Wächter GmbH
D 75004 Bretten

Event for packaging industry suppliers to take place at new location, concurrently with world's leading trade fair

“components for processing and packaging” to introduce revamped concept at interpack 2017



**04th - 10th May 2017:
interpack 2017, Duesseldorf (D)**

Following its debut at interpack 2014, “components for processing and packaging” will return to the next leading trade fair for the packaging industry and related process industries from 4 to 10 May 2017 with a revised concept. Visitors will find the event at a new site within the Düsseldorf Exhibition Centre, in the temporary Hall 18. Covering about 5,000 square metres, the hall will be situated at the heart of interpack, between exhibition halls 10 and 16, whose exhibition areas it supplements.

“The idea of a complementary trade fair for the suppliers of interpack exhibitors from the packaging technology segment

was well received in 2014. But the old location at the periphery of the Exhibition Centre wasn't optimal as far as visitor traffic is concerned. At the new site, components will be right where the action is”, says interpack Director Bernd Jablonowski.

What's more, components will now be accessible to all visitors for the full duration of the interpack trade fair. Again in 2017, companies targeted on the exhibitor side will include suppliers of drive, control and sensor technology; industrial image processing products; handling technology; industrial software and communication; and end-to-end automation systems for packing machinery. In addition, manufacturers of machine parts, components, accessories and peripherals as well as producers of packaging components and auxiliaries will also be addressed. Moreo-

ver, plans call for the inclusion of additional, complementary target groups.

In addition, exhibitors at the upcoming components will have the option of building a customised stand. At the previous event, only turnkey packages in fixed sizes including stand construction, furnishings and power were offered. Exhibitors and visitors alike will be able to transition freely in both directions between interpack and components for processing and packaging without a separate ticket. Interested companies can apply for an exhibitor spot on the Internet starting in autumn 2015. The components web presence will relaunch shortly with a new design.

Messe Düsseldorf GmbH
D 40001 Düsseldorf

ENGEL at NPE2015 in Orlando



Five Star Industry Competence

“It’s your choice to be a winner!” is the motto for ENGEL at NPE2015 from March 23 to 27 in Orlando, Florida. Presenting eight innovative applications, the injection moulding machine manufacturer and system supplier will demonstrate how the specific requirements of five industrial branches—automotive, packaging, medical, teletronics and technical moulding—can be realised with efficient and economical injection molding solutions. They will show that the key to increased competitiveness can be found in both customised, highly-integrated system solutions and flexible standard machines.

The highlights at the ENGEL booth in the West building, hall A will include the first composite brake pedal manufactured in a one-shot process, the new high-performance ENGEL e-speed machine, the particularly dynamic ENGEL e-pic pick-and-place robot, as well as innovative service tools for an even higher level of process security and machine availability.

and markedly lower productivity per square foot as production usually requires several independent manufacturing cells. “Drip chambers are mass-market products that need to be manufactured economically while maintaining the stringent demands on product safety and cleanliness,” says Mark Sankovitch, underlining the great significance of the one-shot process. Other industries could also profit from this leap in efficiency. For example, fuel filters are also hollow bodies with an integrated inlay.

For this exhibit, the mold manufacturing partner Hack Formenbau (Kirchheim, Germany), provides a key prerequisite for the high level of integration with the use of servo-electric drive technology for all movements of the index plate mould. This allows the synchronous control of commonly independent movements.

An ENGEL easix multi-axis robot is also integrated into the manufacturing cell for handling both the filter and finished parts. The robot presents the drop chambers to a 100 percent quality control check before they are discharged.

High performance with maximum safety

In order to increase productivity, the field of medical technology is moving more and more to the use of multi-cavity molds along with the larger injection moulding machines they require. As a result, ENGEL has designed the ENGEL e-motion all-electric machine series to meet the requirements of high-performance applications, with no compromise to process stability and part quality, even when used with high clamping forces. Together with automation specialist HEKUMA (Eching, Germany) and mold manufacturer Braunform (Bahlingen, Germany); ENGEL will be presenting the highly automated cleanroom production of needle holders for insulin pens at the NPE.

The cores of the 96-cavity mold have a diameter of just 0.3 mm. To counter deformation of cores effectively, the electric injection unit of the ENGEL e-motion 440/240 T US is equipped with a direct drive, which provides highly dynamic injection movements and injection speeds of up to 500 mm/s. If, however, there is a problem with a manufactured part, the camera-based monitoring system registers it immediately. Thanks to cavity specific handling, reject parts are automatically separated and the injection moulding can carry on producing without deactivating the cavity. Despite the delicate mold cores, the all-electric machine achieves exceptionally short cycle times of around 3.5 seconds.

[...]

ENGEL AUSTRIA GmbH
A 4311 Schwertberg

23rd - 27th March 2015: NPE 2015, Orlando (FL, USA)

The plastics industry in North America continues on a course of growth. In particular, there is an increasing demand for innovative techniques and economic solutions for high-performance applications. Both trends are reflected in the exhibits at the ENGEL booth at NPE2015.

One main emphasis will be on lightweight construction, which is currently one of the areas with the strongest growth. „In the next few years we can look forward to strong growth in the injection molding industry, particularly in the field of fiber composite engineering,” points out Mark Sankovitch, President and CEO of ENGEL North America with headquarters in York, Pennsylvania. Directed fiber systems have long since established themselves in high-performance products—for example in the aircraft industry. For composite materials to find even wider use in high volume applications, such as in the automotive sector, the biggest challenge at present is to develop manufacturing processes that provide low unit costs despite high volumes. „ENGEL is providing ground-breaking offerings in thermoplastics solutions to provide production breakthroughs across all industries,” emphasises Sankovitch. Injection moulding technologies offer great potential for this. ENGEL already fulfils another crucial success factor with its high levels of system solution and automation expertise. To promote even faster development of new processes, ENGEL established its own technology center for lightweight composites in 2012 at the site of its large-scale machine production facility in St. Valentin, Austria. The technology center was created primarily as a platform for interdisciplinary collaboration with international partner enterprises and universities. In col-



ENGEL will produce drip chambers with integrated filters in a single workstep at NPE2015. For this, a tie-bar-less ENGEL e-victory combi machine will process three different raw materials. (Image: ENGEL)

laboration with its system partners, ENGEL has been able to set several milestones in recent years.

ENGEL medical: Higher productivity with a smaller plant footprint

In the Medical section of its display at NPE2015, ENGEL will be producing drip chambers with an integrated filter for blood transfusions. An ENGEL e-victory 310H/80W/50V/180 combi US three-component injection molding machine with ecodrive and a cleanroom design will be used in this highly integrated production process. The drip chambers will include one ABS and one PP component; in a single work step they will be injection moulded, fitted with the filter, and joined by means of over moulding with additional polypropylene. This unprecedented level 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, with the inlay fitted and bonded in subsequent process steps. However, this leads to longer cycles, a greater logistical effort including a greater risk of contamination,

New CO2 probe for Omniport 30

Hand-held transmitter from E+E Elektronik now also measures CO2

Now available for the Omniport 30 hand-held transmitter from E+E Elektronik is a CO2 probe with a measurement range of 0...2000 / 5000 / 10,000ppm. This means that the device can be used for ambient air monitoring or for CO2 leak localization. Other E+E probes for humidity, temperature and air velocity and the integrated air pressure sensor make the Omniport 30 a universal transmitter for a variety of applications. A total of up to 23 different measurements can be recorded and stored.

The new CO2 probe is based on the NDIR dual wave length procedure and was developed specifically for demanding applications. Auto calibration and temperature compensation ensure long-term stability and high precision measurement results. The CO2 probe can also be calibrated directly on-site via the hand-held transmitter.

The Omniport 30 offers continuous and single-point data logging with time stamp. Up to three measurements can be displayed simultaneously on the large, easy to read TFT display. The data can also be displayed in the form of graphs. The intuitive menu guidance and touchscreen navigation make operating the hand-held transmitter easy and user friendly.

The internal memory of the Omniport 30 provides space for up to 2 million measurement values that can be transferred to a PC via USB interface. Complimentary data management software is available to carry out further analysis and archiving. Software updates can also be



Figure 2: A wide range of interchangeable sensing probes make the Omniport 30 a universally applicable measuring instrument. (Photo: E+E Elektronik GmbH)Clean

carried out via the USB interface.

A practical transport case is available for safe storage of the hand-held transmitter, including sensing probes and accessories.



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ACREX India growing continuously

- Current trends: energy efficiency and sustainability
- Gathering of international associations



ACREX India, South Asia's biggest trade fair for air conditioning systems, refrigeration systems and building services, takes place in Bangalore from 26–28 February 2015. The exhibitors at ACREX India 2015, which is organized by the Indian Society of Heating, Refrigeration and Air Conditioning Engineers (ISHRAE) and NürnbergMesse India, show the latest trends in the sustainable and environment-friendly solutions from the industry. With products from all segments of air conditioning systems, refrigeration systems and building services and its basic theme of "Less Energy=More Life", the event spans the spectrum to energy efficiency and renewable energy. It also deals with global warming aspects.

26th - 28th February 2015: ACREX India, Bangalore (India)

After an excellent event in New Delhi in 2014 with over 400 exhibitors and some 30,000 visitors, ACREX India continues its success story and returns as scheduled to Bangalore in 2015. It is the ideal platform for many international associations and organizations like AMCHAM, CAR China, CIBSE, EBTC, KRAIA Korea, REHVA, UNEP, US Commercial Services and VDMA Germany to meet the Indian industry for networking. The exhibition intends to set new standards in 2015 and build on the good relationships of the previous event. "Over the past years, ACREX India has developed into an event that the whole industry - from architects and consultants to developers - looks forward to. With exhibitors from 25 countries, ACREX India is also convincing in terms of the annually increasing international involvement. We expect the number of inter-

national participants to grow again in 2015," says Sonia Prashar, Managing Director of NürnbergMesse India.

ACREX India 2015: climate protection at the top of the agenda

The basic theme of ACREX India 2015 is "Less Energy=More Life". The trade fair focuses on energy efficiency, sustainability and renewable energy. The high energy demand of the Indian population calls for sustainable and environment-friendly solutions. ACREX India presents energy-efficient solutions for systems and processes to also ensure a better quality of life with less energy consumption. These approaches can make a great contribution to slowing down global warming.

In line with the basic theme of the exhibition, Bangalore with its LEED-certified Bangalore International Exhibition Centre (BIEC) is the ideal venue. "As many as 39 of the 41 ecological buildings in the federal state of Karnataka are in Bangalore. Because India still relies on expensive diesel genera-

tors for uninterruptible power supply, end consumers need energy-efficient air conditioning and refrigeration systems that have low operating costs. This concerns mainly buildings with high energy consumption like office buildings, shops or restaurants. The currently increasing demand for energy-efficient air conditioning, refrigeration, ventilation and heat pumps makes this exactly the right time for ACREX India to return to Bangalore," says Nirmal Ram, Director General of ISHRAE.

Large product spectrum for the experts

ACREX India 2015 shows a broad spectrum of products in the ventilation, refrigeration and air conditioning segments, but also for water treatment and electrical engineering. The companies not only exhibit complete systems, but individual components too. "ACREX India is currently South Asia's biggest exhibition for air conditioning systems, cooling systems and building services. It has become an all-embracing, high-quality and professional exhibition. Together with Bangalore's rapidly developing building industry, ACREX India is the ideal platform for industry and business to get to know the sector's latest technologies," says Madhava Rao, Chairman of ACREX India 2015.

Programme at ACREX India 2015: extensive and highly qualified

ACREX India not only presents the latest trends and know-how in the exhibition halls. The event is also accompanied by informative technical workshops, seminars, presentations and conferences. The visiting professionals can take an in-depth look at specific topics and exchange expert knowledge at international level.

NürnbergMesse GmbH D 90471 Nürnberg

Registration documents available from the beginning of 2015



K 2016 invites exhibitors from all over the world

19th - 26th October 2016: K 2016, Duesseldorf (D)

Not long to go now: the registration documents for the world's premier trade fair for the plastics and rubber industry will be available from January 2015. That is when the printed exhibitor invitations will be sent out and the digital registration form can be used at www.k-online.com. For all companies wishing to participate in K 2016, the closing

date for registration is 31 May 2015. Werner Matthias Dornscheidt, President and CEO of Messe Düsseldorf, and his team are looking forward to the exhibitor response: "After busy months of preparation, we are now shifting into the 'active' phase. We are again expecting a very big turnout, as K in Düsseldorf is the industry's platform for premieres. Every three years, companies from all over the world come here to present their innovations and their current and visionary solutions. Thanks to their unparalleled breadth

of offering and the unmatched internationality of exhibitors and visitors, the fair is in a class of its own worldwide."

The presentations of exhibiting companies at K 2016 will be supplemented by a special show illustrating the possible uses of plastics and their diversified properties well beyond the present day. Health and nutrition, quality of life, communication and global networking, energy efficiency and climate protection, and safety and mobility are just some of the topics spotlighted. The special

K 2016 invites exhibitors from all over the world

show is being organised by the German plastics industry under the auspices of PlasticEurope Deutschland and Messe Düsseldorf.

Other highlights of the accompanying programme of K 2016 will be the Science Campus, the field of additive manufacturing and the PEPSO pavilion:

- The Science Campus is the forum for research and teaching. In this special zone, institutes, universities and other higher education establishments are presenting their latest scientific findings on the complex overall theme of plastics and rubber.
- Under the 3D fab+print banner, special

prominence will be given to the diversity of generative production techniques known as 3D printing.

- At the Printed Electronics Products and Solutions (PEPSO) pavilion, suppliers from the printed electronics sector can exhibit their latest developments in a dedicated area.

Numerous useful features on the Internet will be making it easier for exhibitors to register for K 2016 and organise their trade fair participation. For instance, companies that exhibited in 2013 can log in with their existing access data. All they have to enter on the registration form are any changes to

the 2013 details. First-time exhibitors are asked to choose the type and size of exhibition stand and enter what they will be exhibiting on the basis of product categories. Then they simply add a personal contact and the relevant company details, and their original registration is complete. Anyone who needs help is welcome to contact the teams in Düsseldorf and of any of the 72 foreign representatives and subsidiaries around the globe.

With its impressive product innovations and the multitude of business transactions concluded in October last year, K 2013 surpassed even the highest expectations. 3,220 exhibiting companies and 218,000 trade visitors came together in Düsseldorf.

Messe Düsseldorf GmbH D 40001 Düsseldorf

Robots ensure efficiency and reliability

Anuga FoodTec 2015: Robots have become indispensable in food and beverage production

Food processing places special demands on robot technology.

The world of robotics is currently facing another breakthrough: small, lightweight, comfortable and above all, flexible - that's how engineers envisage the industrial lightweight robots of the future. The greatest revolution, however, will be the direct cooperation between man and machine - without a separating safety fence. The advances in automation cannot be overlooked at the Anuga FoodTec show held 24-27 March 2015 in Cologne, Germany. In the future, these „steel colleagues“ of the food industry will be able to do more complex tasks than is the case today.

24th - 27th March 2015: Anuga FoodTec 2015, Cologne (D)

The TV series Real Humans shows what happens when people and robots live together. So-called Hubots (human robots) are capable of learning and used as domestic servants or factory workers. Real Humans looks into the future, but mirrors reality: because the robots have left their safety cage. A symbol of this is „Frida“, a concept study by ABB. Equipped with two arms that each have seven degrees of freedom respectively, the robot can be implemented in workplaces that are actually reserved for people.

The „third hand“ in production

Human-robot collaboration is currently the trend par excellence. It stands for the smooth transition from industrial robotics towards service robotics. Thanks to their torque sensors in all axes, the robots have the necessary flexibility not to hurt people. These should now allow processes to be automated that have not been automatable at all so far. One example is the TX2 series six-

axis robots from Staubli Robotics. They have managed to „integrate safety features that let us realize new possibilities in man-machine collaboration,“ emphasizes Staubli's Chief Financial Officer Manfred Hübschmann. The closed structure of the robot series and its design with IP65 protection - the wrist is held in IP67 and thus waterproof - predestine the TX2 series for use designed to meet cleanroom and hygiene requirements.

By expanding their small robotics series, the key players of the industry underline their ambition to grow in markets beyond the automotive industry. 179,000 robots were sold worldwide in 2013. „A new record,“ as Arturo Baronecelli, President of the International Federation of Robotics, points out. After South Korea and Japan, Germany has the highest robot density: with an average of 261 robots for every 10,000 workers. At present, the global market for robotics is 22 billion Euros. By 2020 this could grow to more than 60 billion Euros. Experts like Henrik Ryegard, who heads the Robotics Division at ABB, regard the food industry as one of the largest markets - robot density here is still well below the average.



Hurdles in food production

The main driving force behind the use of robots is economical: the machines replace expensive human labour. This is not without problems per se because the food industry is a challenging environment. So far robots have particularly dominated in non-critical areas, such as palletising and packing stations. Five or six-axis industrial robots are ideal tools to do these kinds of monotonous and often demanding tasks in a reliable manner. Special protective covers provide protection under arctic conditions which prevail in warehouses for frozen foods.

Other requirements apply for any contact with open foodstuffs. In this case, not only must hygienic safety satisfy higher expectations but the mechatronic equipment of the robots as well. „Pastries, meats, vegetables and sweets vary in quality and size,“ is how Dr. Knut Franke from the German Institute of Food Technologies in Quakenbrück describes the problem in a nutshell. He cites an example: „Automatic fine-cutting of pork requires very sophisticated sensor technology.“ The algorithms that Franke and his team are currently developing for the robot movements should enable automatic cutting of pieces of meat and contribute to a more efficient production of safer meat products in the future.

Through the interaction of software, controller and mechanical systems, robots can pack almost any food today. Thus, Unilever, for example, uses the FlexPicker to package its popular Bifi snack. The system inserts up to 600 mini sausages per minute into the film of the thermoforming machine. In cases such as these, more than just „tactile dexterity“ is required from the robots when gripping: hygiene aspects are high on the agenda. The robots and their tools may not provide entry points for dirt and bacteria. They also need to be washable and resistant

Anuga FoodTec 2015: Robots have become indispensable in food and beverage production

to disinfectants. This explains the popularity of robots made of stainless steel in protection class IP67 or higher.

It will take some time for human-like „Hubots“ from Real Humans. But, in the near future, robots will be performing increasingly complex mechanised tasks. This will create new opportunities for the food industry, especially for small and medium-sized enterprises. This is not always a matter

of automating the entire production - semi-autonomous systems, as can be seen at the Anuga FoodTec show, often provide the greater benefit.

Future-oriented topics are also addressed in Anuga FoodTec's professional program. The DLG will thus address topical issues in 27 short specialist forums. Among other things, technical topics will be the focus of attention like hygienic design, freezing technology,

the use of robots in the food industry or the detection of foreign material in foodstuffs. Event information: 25 March 2015, 10:00 a.m. to 12:00 p.m., Forum 8 - Robots in food production (Congress Centre North).

Anuga FoodTec is jointly organised by Koelnmesse GmbH and the German Agricultural Society (DLG).

Koelnmesse GmbH
D 50532 Köln

Pharmaceutical primary packaging with high-priority quality assurance



Photo:
Phillips-Medisize

**11th - 12th February 2015:
Pharmapack 2015, Paris (FR)**

Countless people take them, and to many of them, they are indispensable: medication, pharmaceuticals are supposed to provide patients of all ages with the best possible help. Primary packaging plays a very important role in that respect: it is intended to protect medical products as well as possible, irrespective of their physical form, while at the same time remaining user-friendly. The main objective is to put design and production expertise into practice. Phillips-Medisize will show specialised visitors its expertise in developing and manufacturing pharmaceutical primary packaging made of plastics at stand 719 in the Pharmapack exposition, which will be held in Paris on 11-12 February 2015. A wide variety of products will be displayed, ranging from special drug delivery devices, dosage systems, disposable insulin pens, inhalers, mixing injectors, bottles and caps, on to sterile multi-chamber bags. Phillips-Medisize offers customers complete end-to-

end service, from the idea to the finished solution, from designing to the product in sterile packing. Its strong points on the market are especially drug delivery and dosage systems which undergo cross-process inspection through high-priority quality assurance in accordance with ISO 13485 and FDA standards as well as GMP (Good Manufacturing Practice). One of the items displayed from the rich repertoire - a special spray applicator - is a paragon of high-quality pharmaceutical primary packaging.

Spray applicator: the customer's design requirements demand that the product was child-proof, an important factor for the product launch - particularly on the US market - and a container made of PET, considered to be a harmless type of plastic. All of its components are produced and assembled under the necessary conditions of hygiene in the plant in Nürensdorf, Switzerland. Small metal springs for the spray mechanism and the pumps are purchased. The chosen manufacturing process consists of injection moulding and injection stretch blow techniques. With the latter, the nozzle section of the bottle is formed in the first step, and then the lower part is blow-moulded separately. This ensures proper sealing. Precise processing and proper sealing of the sprayer are also very important to ensure that the product is child-proof. The customer awarded the contract to Phillips-Medisize not only because of the company's technological skills but also because of its holistic approach to the project. The spray applicator is made of seven parts (the injection-stretch-blown PET container and the six injection-moulded parts made of PP or POM). The differently shaped parts require using multi-cavity tools of various sizes on injection moulding machines with clamping pressures of 50 to 200 tonnes. Extensive validation procedures were carried out prior to the production launch: from DQ (Design Qualification), to IQ (Installation Qualification), on to OQ (Operation Qualification) and PQ (Production Qualification). In the assembly process, the parts pass through 16 assembly stations before the so-called "subcomponent" is completed. The validation procedures also have the added ergonomics advantage that the amount of non-recyclable materials - that have to be discarded during production - is extremely low considering the fact that the various plastic parts have to intermesh precisely and that each part has different tolerances that must not exceed 0.03 millimetres at most.

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