

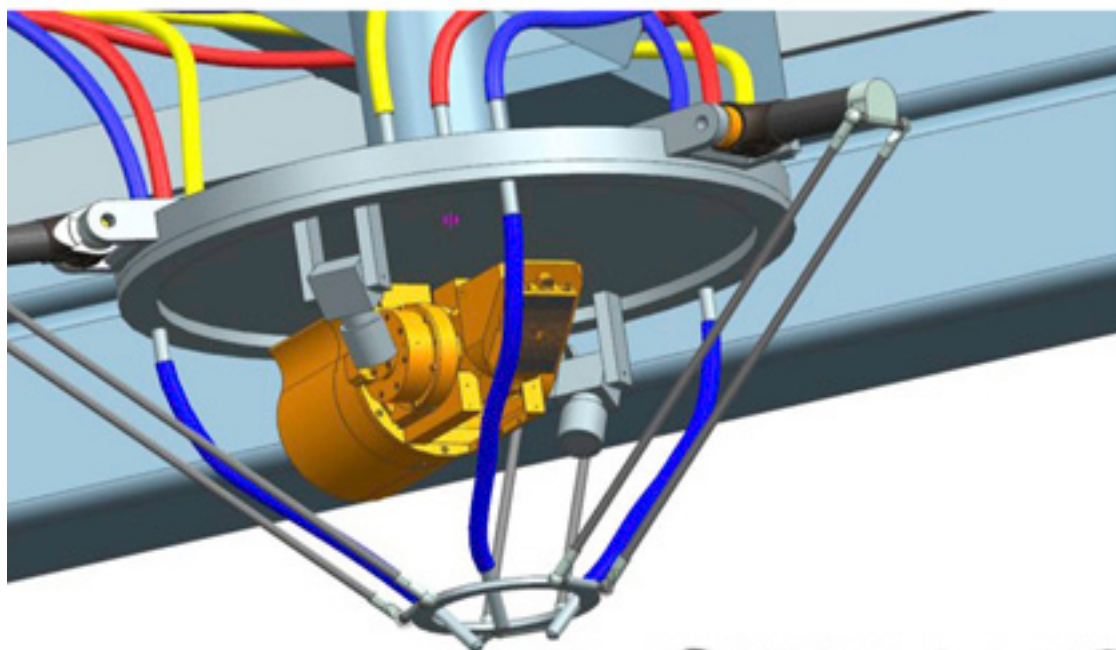


Hans J. Michael GmbH



FRAMOS supports trendsetting EU research projects with image processing expertise

Employee-friendly work stations, effective 3D production and innovative clean room islands



BOREALIS

In order to build and expand image processing and its benefits for industry, the global image processing specialist FRAMOS is supporting several EU-funded projects with research resources and know-how. The Munich-based company is developing complex imaging systems as well as hardware and software solutions in three renowned EU projects.

The Man Made project aims at creating worker-friendly designs for the production workstation of the future. Monotonous, dull and physically stressful, conveyor belt work does not have a good reputation among those employed in these positions. As an image processing specialist, FRAMOS is developing a so-called anthropometry scanner for body sizes with the data output enabling the workstation to be adapted to the specific physical circumstances of the production worker. Using a stereo camera system developed by FRAMOS, 22 body dimensions are extracted mainly automatically for this purpose. Compared to currently available anthropometry measuring methods such as 2D measurement or complex 3D scanners, the an-

thropometry scanner - consisting of industrial CCD cameras from the company Smartek Vision - is easy to operate, measures with a high degree of accuracy and is cost-effective. An algorithm specially developed by FRAMOS allows automatic mapping of the necessary measuring points on the respective individual enabling the scan to be performed quickly and without technical staff, for example as part of a company's health check-up for employees. An extensive database filled with this data makes it possible to create an ergonomic workplace design centred on the employee and adapts job planning to suit individual skills, helping to make conveyor belt work more attractive to employees in the future.

The idea behind White'R is the development of an integrated, modular production solution for the manufacture of optoelectronic components. This self-contained White room consisting of a multi-robotic island can be easily integrated into existing production shops and enables the handling, assembly and disassembly of high value added optoelectronic compon-

Employee-friendly work stations, effective 3D production and innovative clean room islands

ents. The island's devices - robots, operation units, transport, handling and tooling systems - are regarded as reusable Plug-n-Produce modules. In a sub-project called „Smart Sensing System“, concerning the design of a camera-based production control system, FRAMOS analyses the necessary measuring precision and uses InGaAs technology to check photovoltaic cells for damage and functionality in the darkroom. Building on this, the image processing specialists, led by IT and Development Manager Dietmar Scharf, select appropriate interfaces and communication protocols, define all relevant technical camera aspects and choose the right hardware. Additionally, the camera's FPGA architecture is being adapted by the FRAMOS team for time-critical image processing algorithms, the necessary reduction in bandwidth, and further WhiteR-specific requirements. The consortium of 13 partners from academic research institutes, system developers and industrial end customers focuses on immediate practical orientation and implementation in pilot projects. Along with Man Made, it is the second funded project in which FRAMOS is participating in the 7th European research framework programme as an image processing expert.

In Borealis, a sub-project of the research and innovation Horizon2020 (successor to Framework 7) that is currently funded with EUR 80 billion by the EU, FRAMOS is undertaking research and development work on the additive and subtractive manufacturing of the next generation of complex 3D metal parts. A software platform with thermal imaging and 3D camera systems developed and integrated by FRAMOS enables constant production monitoring and backlog-free process adaptation in compliance with the various energy and resour-



ce guidelines for optimising utilisation systems, as Borealis recommends the expanded concept of a flexible machine type with energy class AAA+. Based on a trendsetting and high-performance FPGA-based image processing system made up of various high-speed cameras, FRAMOS analyses and designs the necessary hardware structure in order to integrate ideal data processing into the computer-assisted production chain.

The 16 participating partner companies include Fraunhofer, Coherent and several universities; Borealis focuses on the complex production challenges in aerospace engineering, medical technology and the automotive sector. im Automotivebereich.

FRAMOS GmbH
D 82024 Taufkirchen

Gerresheimer, the expert for glass and plastic, is showcasing innovative plastic containers for pharmaceutical applications at the PDA in Baltimore

Gx MultiShell unites the properties of glass and plastic



Every day, millions of people are treated with parenteral medications, such as precautionary vaccinations or injections and infusions for medical conditions. Gerresheimer supplies the pharmaceutical industry with vials and syringes in plastic and glass for a wide range of applications.

18th - 19th May 2015: PDA, Baltimore (USA)

The product highlights on display at Gerresheimer's booth no. 11 at the PDA in Baltimore include Gx MultiShell vials and Clearject syringes made of COP, which are ideal for parenteral medications, biopharmaceuticals and oncological drugs due to their special high-performance polymer structures.

"Excellent barrier properties and glass-clear transparency don't necessarily rule each other out," explained Franck Langet, Business Development Manager for North America, talking about the outstanding features of the two innovative products.

Gx MultiShell Vials protect their content by way of a sandwich or multilayer structure composed of cyclic olefin polymer plus a polyamide layer as an oxygen barrier. This protects sensitive pharmaceuticals against oxidation and water vapor, and the polyamide oxygen barrier increases their shelf life.

"The benefits for the pharmaceutical industry are higher efficiency and a more precise dosage during administration," added Franck Langet.

Other products and product studies on display at the Gerresheimer booth are COP monolayer containers and a new generation of dispensing systems considering innovative features to improve drug treatment adherence and compliance like, pill counters, sound and visual effects, grinder devices, a



system for micro-tablets, timers and calendar caps.

Gerresheimer AG
D 40468 Düsseldorf

First design prize of this kind for Packaging Technology

Excellent packaging engineering: Bosch machine honoured with Red Dot Award



- FXS Combi fills and closes syringes, vials and cartridges
- Expert jury acknowledges Bosch's design competence
- Focus on flexibility and safety

FXS Combi receives Red Dot Award: Bosch Packaging Technology has received the internationally renowned Red Dot Award from the Design Zentrum Nordrhein-Westfalen for the well-executed design achievement of the FXS Combi. The filling and closing machine, developed at the site in Crailsheim, safely and gently fills pharmaceutical liquids into pre-sterilized nested syringes, vials and cartridges.

For the first time, Bosch Packaging Technology has received the internationally renowned "Red Dot Award" from the Design Zentrum Nordrhein-Westfalen in the category product design. The independent 38-member jury announced on March 30 that it awards the company with an "Honourable Mention" and acknowledges the well-executed design achievement of the FXS Combi. The filling and closing machine for pre-sterilized nested syringes, vials and cartridges (small glass containers), developed at the site in Crailsheim, is the first machine from the Packaging Technology division to receive this important design award.

proven tub and bag openers, as well as different barrier systems, the FXS Combi can be flexibly integrated into complete line concepts, while allowing for significant space savings. Visitors to Achema 2015 can see for themselves in Frankfurt/Main, Germany, from June 15 to 19 (hall 3.1, booth C71).

"We are very happy about the Red Dot Award, which underlines our expertise in the development of innovative solutions for the pharmaceutical industry. The award shows that our products are not only convincing in terms of quality. They also stand out internationally because of their design," says Klaus Ullherr, product manager at Bosch in Crailsheim. The international experts assessed a total of 4 928 entries from 56 countries. On June 29, the internationally renowned product competition will culminate in the Red Dot gala.

The Red Dot Award

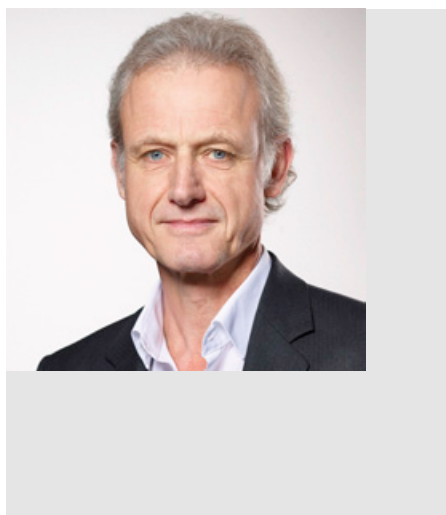
The Red Dot Award was created by the Design Zentrum Nordrhein-Westfalen and is one of the best-respected design competitions in the world with approximately 17 000 entries each year. In 2015, the award is celebrating its 60th anniversary. In 1955, a jury convened for the first time to assess the best designs of the time. Today it consists of 38 members. The sought-after award, the "Red Dot", is the internationally respected seal for outstanding design quality.

Flexibility for various packaging types

The FXS Combi, which was launched at Interpack 2014, offers particular flexibility and safety. The machine is suited for three different pre-sterilized packaging types, as well as all common filling technologies. As the first filling and closing machine of this kind, the FXS Combi features an integrated capping station for vials and cartridges. Here, the containers are immediately closed after filling to ensure the highest pharmaceutical safety. By combining the machine with



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Dear readers, dear subscribers,

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

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

Yours sincerely

Reinhold Schuster



The map shows where the readers of the cleanroom online newsletter are coming from: if you want to get in contact with these readers please contact us.



NEW

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Raumedic AG, a producer of plastic medical and pharmaceutical products, has been certified by TÜV SÜD according to the ISO 15378 primary packaging materials standard. Based on DIN EN ISO 9001, ISO 15378 specifies a large number of additional requirements particularly for primary packaging materials that come in contact with drugs.

Raumedic AG obtains ISO 15378 certification for primary packaging material

The significance of ISO 15378 certification has increased steadily in recent years. The content of this international standard includes requirements from the German Drug and Active Agent Production Directive (AMWHV) and relevant GMP requirements. Certification is an important step for Raumedic as a developer and producer of primary packaging materials in order to satisfy the high expectations of drug manufacturers.

„By meeting the criteria of ISO 15378 with respect to risk management, the work environment, and validation, we offer our customers even greater safety for hygienically flawless and safe primary packaging materials” says Dr. Ernst Schmiedl, Head of Quality Management. „From product and tool design and prototyping to manual, semiautomatic, and even fully automatic assembly, all processes are covered.“

The production processes at Raumedic are subject to an integrated quality management system (QMS) and the rules of good manufacturing practice (GMP), through which the required quality standards are met. Furthermore, Raumedic ensures compliance with the FDA requirements from the Code of Federal Regulations for medical products.

Raumedic AG
D 95233 Helmbrechts



Raumedic AG's DIN EN ISO15378:2011 certificate



Primary packaging material from areas such as injection, inhalation, and drug delivery will be produced at Raumedic in accordance with DIN EN ISO 15378:2011 from now on.

A few weeks before the closing date for registrations, Messe Düsseldorf is recording extremely lively demand for exhibition space.

K 2016 – pointing the way forward for the world's plastics and rubber industry



19th - 26th Oct. 2016: K 2016, Düsseldorf (D)

With a few weeks to go before the closing date for registrations for K 2016, one thing is already certain: the fair will again provide a complete overview of the world market of the plastics and rubber industry. Some 3,000 exhibitors will be attending the world's premier fair, which is taking place from 19 to 26 October 2016. Demand for exhibition space is extremely lively, and all 19 halls of Düsseldorf's fairgrounds will once again be fully occupied. Companies from all continents have already registered to present their innovations in the following exhibit categories:

- Raw materials, auxiliaries
- Semi-finished products, technical parts and reinforced plastics

- Machines and equipment for the plastics and rubber industry.

„Thanks to its unparalleled breadth of offering and the unmatched internationality of exhibitors and visitors, the fair is in a class of its own worldwide. It is the place where key decisions for products and processes and problem-solving are taken, and it points the way forward for the whole industry for the coming years,” says Werner M. Dornscheidt, President and CEO of Messe Düsseldorf. „We are delighted that demand for exhibition space is again extremely buoyant. The companies from the world of plastics and rubber know that they can look forward to an excellent springboard for their business success every three years in Düsseldorf. Registration for K 2016 is still possible until 31 May 2015.“

The presentations of exhibiting companies at K 2016 will be supplemented by a spe-

cial show illustrating the potential of plastics and rubber for forward-looking applications. With reference to examples from different sectors, it shows the extent to which their diversified properties shape our lives today and the contributions that they can make in the solution of important everyday problems. The special show is being organised by the German plastics industry under the auspices of PlasticsEurope Deutschland e.V. and Messe Düsseldorf.

Another highlight of the supporting programme at K 2016 will be the Science Campus, the forum for research and teaching. The Science Campus provides a compact overview of the activities and findings of university and scientific organisations and helps to intensify dialogue between research and industry. .

Messe Düsseldorf GmbH D 40001 Düsseldorf

More than 5.900 invited guests attended the Arburg Technology Days 2015 event from 11 to 14 March 2015 to gain a detailed insight into industry trends and to see the highlights of the company's offering. The focus was laid on production-efficient processing technology, from one-off parts to high-volume production, from the Freeformer for additive manufacturing to the wide product range of Allrounder injection moulding machines. In addition, guests could visit the Efficiency Arena, attend expert presentations, check out a special service area and take tours of the plant.

Experts meet in Lossburg

Arburg Technology Days 2015

- More than 5.900 visitors from 49 countries: see the entire Arburg technology range over four days
- Unique atmosphere in Lossburg: technology and talk for customers from around the world
- Efficiency Arena: efficiency from product design to individual parts

"Once again this year we have put together a very interesting range of technologies and services for our international guests, presenting our innovative and production-efficient solutions and offering an insight into the future of efficient plastic parts production," said Michael Hehl, Managing Partner and spokesperson for the Arburg Management Team. "As every year, we welcomed several thousands of visitors from all over the world. This is because there is no comparable event all over the world and because we can attend our customers in a more intensive and individual way, compared to the trade fairs."

This year, around 45 percent of visitors travelled from abroad. The largest groups came from Europe: Switzerland with around 280, France with around 210, the Czech Republic with around 160 and Poland with around 130 participants. Significant groups came from overseas, particularly from the US (around 140 guests) and China (around 100).

Intelligent individualising of high-volume parts

The individualisation of mass-produced parts using the Freeformer was demonstrated in the Efficiency Arena. A pair of office scissors was used as an example, so that visitors could witness the combination of injection moulding and additive manufacturing, making use of Industry 4.0 technologies. Several different versions of scissor blanks were available for visitors to choose from. An Allrounder moulded the handles onto the scissors, after which a code was applied by laser to ensure unique traceability and to display all the relevant process data. At the Freeformer station, individually configurable 3D lettering in PP was additively applied to the scissors.

Furthermore, Arburg, together with partners, demonstrated the optimisation potential for production-efficient plastic parts production throughout the entire value-added chain at eight stations.

Freeformers displayed their capabilities

A total of five Freeformers presented the



current progress in the development of Arburg Plastic Freeforming (AKF). The exhibits in the Efficiency Arena illustrated new possibilities for product design and mould technology, as well as the individualisation of high-volume items. One Freeformer demonstrated how new functional samples of scissor handles could be produced in the shortest time and how the parts could be optimally designed for additive manufacturing. Another system produced a scissor holder in an additive manufacturing process, as an alternative to conventional fixture construction.

For example, bellows made from TPU and key chains made from ABS with an articulated joint were produced in the Freeformer Technology Centre and the second discharge unit was used to process a special supporting material that can be easily removed in a water bath at a later stage.

Focus on micro components

A special micro production cell built around an electric Allrounder 270 A operated with the new Euromap size 5 micro-injection unit. Together with a linear Multilift

H 3+1 robotic system, this formed a flexible system solution for the reproducible production of micro components, in this case micro counter wheels weighing just 0.004 grams. The new micro-injection unit combines the precise regulation of short strokes with high filling dynamics.

Focus on lightweight construction

Visitors were able to see several systems demonstrating lightweight construction techniques. Arburg has collaborated with the Institute for Plastics Processing (IKV) from Aachen during research and development of the Profoam process and presented the latest technological advances. In the Profoam process, the plastic granulate is mixed with liquid propellant in a granulate lock upstream of the injection unit. An electric Allrounder 820 A was used to demonstrate how this method could be used to produce strong, lightweight, low-distortion parts with a homogeneous foam structure based on the example of a physically foamed airbag housing made from fibre-reinforced PP.

The cost-efficient production of high-

Arburg Technology Days 2015

strength lightweight parts using long-fibre direct injection moulding was demonstrated by a hydraulic Allrounder 820 S. It produced a high-strength pedal for the automotive industry.

Lightweight parts made from particle foam were produced on a hydraulic Allrounder 470 S and additional functions were integrated by injecting thermoplastic material.

Focus on packaging

Thin-walled items, screw caps, flip-top and multi-component closures were examples of the products on view in the packaging area. A "Packaging" version of a hybrid Allrounder 570 H demonstrated the cost-efficient production of thin-walled tubs. Two 14.3 gram injection-moulded parts made from PP were produced in a cycle time of around 3.9 seconds. The focus in this application lay on the test mould, which can be used on all Arburg packaging machines, irrespective of their size, and can be operated with two, four or six cavities. A further highlight was a Multilift V robotic system featuring the new "dynamic mould-entry axis" option for removal of the tubs.

A great stir was caused by a hydraulic two-component Allrounder 920 S which produced caps for five-gallon water bottles with an innovative cube mould. In a cycle time

of only about ten seconds, 32 pre-moulded parts were produced and cooled on four sides of the cube, the second component was moulded and finished parts were removed during the injection moulding cycle. The material throughput was over 120 kilograms per hour.

A further multi-component product was a flip-top closure. A hybrid Allrounder 470 H was also presented, producing screw caps using an 8-cavity mould and unscrewing them using a hydraulic core pull.

Focus on medical technology

Sophisticated, flexible and clean: these were the requirements which the applications for the medico-technical sector had to meet. A stainless steel version of an electric Allrounder 370 A, was used in a class 7 clean room to produce ampoule holders on a 4-cavity mould. Particle contamination in the production environment was also measured and analysed as part of the exhibit.

A further exhibit was an electric Allrounder 470 A that was specially configured for processing LSR in a clean environment. The machine and peripherals were positioned outside of the "clean area", enabling cost-effective clean room production.

The overview was completed by an electric Allrounder 470 E with complex 8-cavity mould, equipped with a hot runner system and a lateral needle-type shut-off nozzle.

This produced Y-shaped connection elements for use in intravenous drip therapy.

Extensive programme of side events

Visitors to the Technology Days also had plenty of opportunity to see machine production for themselves during tours of the plant. More than 1,500 German-speaking visitors made use of this possibility. Furthermore, all groups of foreign attendees visiting the Technology Days under the auspices of the Arburg subsidiaries and trading partners were given presentations of the company in their own language.

In the Service area, they were able to obtain comprehensive information on product training courses, spare parts management and preventive maintenance with special machine-specific service packages. There was also a demonstration of how the service life of the machines can be extended through regular maintenance and proper care.

Finally, around 2,600 visitors attended the sophisticated and informative expert presentations in German and English. Subjects were unit cost reduction, Arburg Plastic Freeforming (AKF), foam injection moulding, turnkey systems and a success story telling how one company managed to achieve technical change with Arburg as a strategic partner.

ARBURG GmbH + Co KG D 72290 Loßburg

High measurement accuracy down to 0.15 m/s

Transmitter for Very Low Air Velocity



The new EE660 air velocity transmitter from E+E Elektronik measures air velocity down to 0.15 m/s and is particularly suitable for laminar flow control and other clean room applications. The E+E thin film sensor used in EE660 operates on the hot film anemometer principle which is characterized by high accuracy, excellent long-term stability and lowest sensitivity to dirt. The low angular dependence additionally simplifies installation of the transmitter.

The air velocity transmitter is available for wall or duct mounting as well as with remote probe. The large, flush-mounted LCD display with backlight is 180° rotatable and ensures optimal readability of the measured data.

The EE660 has a current and voltage output, whereby both signals are available on the terminal. The measurement range and the response time can be selected via jumpers. An optional kit facilitates easy adjustment of the transmitter and configuration of the display.

External mounting holes allow quick and easy installation of the transmitter with closed cover. This keeps the electronics pro-

tected from construction site pollution. In addition, the electronic components are located on the underside of the PCB and are thus safe from mechanical damage during installation.



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Highly accurate EE660 air velocity transmitter for duct mounting. (Photo: E+E Elektronik GmbH)



EE660 air velocity transmitter with display and remote probe. (Photo: E+E Elektronik GmbH)

Modular cleaning cell for dry selective cleaning in the metal cutting industry

Fully-automated inline cleaning system for machined precision parts

Whether it's rotationally-symmetrical workpieces such as shafts, pistons, bearings, and toothed parts, or medical devices such as implants – if strict tolerances have to be met, each product is carefully checked by optical measurement during the production process. But in order to do this, component surfaces have to be clean. QuattroClean from ACI AG is the ideal solution - an inline and fully-automated innovative cleaning cell.



The easy-to-focus snow jet makes use of four different mechanisms to remove particulate and filmy contamination from almost any technical material in a reliable and reproducible way.

To ensure product quality and cost-efficiency, machined precision parts are often optically measured. The closer the measurement system can be moved to the machining center, the better the results that are obtained. However, contaminants left on the parts' surfaces, such as processing media residues, chips and flaky burrs, can be a problem. They may cause measurement errors and result in parts being rejected unnecessarily. To avoid this, it makes sense to integrate a needs-oriented cleaning step directly between the machining process and measurement step, and this can be achieved using the innovative modular cleaning solution quattroClean from ACI AG. The system can be integrated into a fully-automated production line in the smallest of spaces or used as a stand-alone device. Components can be advanced into the machine using any common automation system. Standardized interfaces allow for easy integration of the serial system controller into a master computer. All relevant process parameters are recorded and stored automatically, or sent to the master computer as required.

Compact cell with integrated CO2 snow-jet cleaning system

Available in three different sizes, the new cleaning cell carries out a dry, selective cleaning step on the surface to be measured, either in the one-piece flow of the production line or in a rotary indexing table. Tailored to specific application requirements, the cell is fitted with a CO2 snow-jet system from acp,

a company belonging to the ACI Group. The environmentally-neutral cleaning technology uses liquid carbon dioxide as a medium, which is generated as a by-product from chemical processes and from generating energy with biomass.

Liquid carbon dioxide is guided through the patented two-component ring nozzle of the acp system where it expands on exiting to form fine snow crystals. These are then bundled by a jacketed jet and accelerated to supersonic speed. A combination of thermal, mechanical, sublimation and solvent mechanisms take place as the easy-to-focus jet impacts at minus 78.5°C on the surface to be cleaned. These four mechanisms enable the QuattroClean system to reliably remove film-like contaminants, e.g. residues of cooling lubricants, processing oils and polishing paste, or particulate contaminants, such as chips, flaky burrs and dust. At the same time, the low degree of hardness of the snow crystals makes sure that even sensitive and finely-structured surfaces are cleaned gently.

Thanks to the aerodynamic power of the compressed air jet, the detached contaminants are instantly carried away from the component surface. Together with the gaseous sublimated carbon dioxide, the contaminants are then removed from the cleaning cell by an integrated suction unit. On completion of the cleaning process, parts are completely dry and can be measured immediately.

Successfully used in serial production

Among other things, the quattroClean system is used by Mahle GmbH to clean the lateral surfaces of engine pistons in an inline process prior to their optical measurement. Parts are handled by a robot which places the pistons both in the cleaning cell and later in the measuring system. To do this, the robot is fitted with two grippers - one for contaminated parts and one for cleaned parts. To avoid measurement errors, parts are re-tempered after cleaning. The quattroClean system operates in the one-piece flow of the production line and is capable of cleaning 11 cm²/sec.



Available in three different sizes, the quattroClean system can be integrated into production lines to perform automated cleaning processes.

Individually-adapted systems, even for cleanroom applications

To determine the exact process parameters required for each application, material property and type of contamination, e.g. volume flow of compressed air and carbon dioxide as well as blasting time cleaning tests are performed. This enables the quattroClean system to be adapted for use in coating, assembly and packaging lines as well as in conjunction with other processes where clean surfaces are required. Depending on the task at hand, ACI also designs cleaning cells for cleanroom use. In order to perform cleaning tests under cleanroom conditions, ACI has its own application center with an ISO Class 7 cleanroom (which can be adapted to ISO Class 6 if required). Equipment is also available for determining cleanliness levels before and after cleaning.

ACI AG
D 78658 Zimmern o. R.

Dürr Ecoclean to present cleaning innovations for the automotive and general industries at parts2clean

Innovative solutions for stable cleaning processes of superior efficiency and sustainability



At this year's parts2clean trade fair in Stuttgart, Dürr Ecoclean will present the innovative EcoCVac dry cleaning system for an energy-saving intermediate cleaning of powertrain components. Moreover, new developments in the fields of aqueous and solvent-based cleaning will be presented. All of these innovations will assist users in implementing more reliable, efficient and sustainable part cleaning processes.

09th - 11th June 2015: parts2clean, Stuttgart (D)

The performance of downstream processing steps and/or the quality and functional reliability of finished products are critically dependent on adequate part cleanliness. At this year's parts2clean, scheduled for June 9 - 11, Dürr Ecoclean will be showcasing innovative developments that set new standards both technically and visually.

One highlight of the trade fair presentation will be the new EcoCVac dry-cleaning system. It has been developed for an energy-saving intermediate cleaning of powertrain parts such as cylinder heads and crankcases in modern engine and transmission production lines. Unlike the pneumatic cleaning equipment conventionally employed between machining operations, the innovative EcoCVac process uses no compressed air at all and hence, eliminates the energy-intensive com-

pressed air generating step. This saves more than 50% of energy. A further advantage is that contaminants will be removed not just from the part, but from the working chamber as well. As a result, the system's process reliability and availability are both enhanced. For degreasing, pre-cleaning, fine and ultra-fine cleaning in the general industry, Dürr Ecoclean will likewise be presenting innovative solutions at parts2clean. These include the EcoCWave in a new two-tank version for water-based media. Unlike conventional aqueous cleaning machines, it is equipped with round, flow-optimized, upright fluid tanks. This offers various advantages: For example, it prevents the formation of chip and dirt traps in the tanks and thus improves cleaning quality and fluid service life. Powerful pumps and large-diameter piping used throughout the EcoCWave accelerate filling and draining of work chamber and tanks. As a result, non-productive times are minimized and machine throughput is increased.

These benefits are shared by the EcoCCore, a machine setting new standards in solvent-based cleaning that will also be on exhibit. It is designed to operate with non-halogenated hydrocarbons and modified alcohols. This ensures its future viability even if the part range or specifications should change. Moreover, this solvent-based system shines with an extensive standard equipment level that includes, e.g., two flood tanks, heat recovery, and full-flow plus bypass filtration.

When it comes to ultra-fine cleaning applications as encountered in toolmaking, optics and medical equipment manufacturing, the cleaning systems offered by UCM - a member of the Dürr Ecoclean Group - provide unsurpassed levels of cleaning quality, process reliability and cost efficiency. Moreover, they come with unique design details - e.g., a four-sided overflow on all immersion tanks - as a standard feature.

Dürr Ecoclean GmbH D 70794 Filderstadt

In ultra-fine cleaning, e.g., prior to coating of power tools, various design details such as the four-sided overflow developed by UCM ensure consistently high part cleanliness standards. (Photo: Dürr Ecoclean)



From formulation to secondary packaging

Drugs against autoimmune diseases: model line from Bosch comprises all process steps



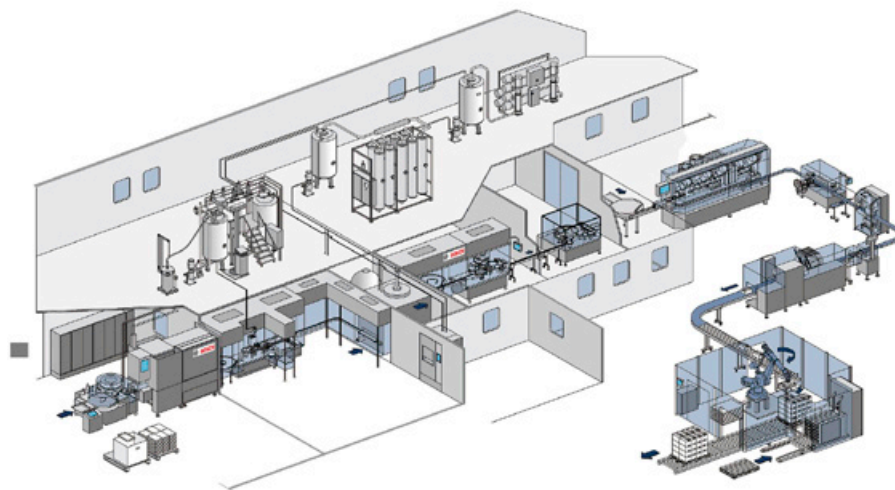
- New, small-volume fermenter for product development
- Flexible filling and closing processes combined with isolator and new wireless glove testing system
- Comprehensive portfolio for handling, sterilization, inspection and secondary packaging

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

At Achema, Bosch Packaging Technology presents an exemplary line encompassing all process steps for the production, filling and packaging of medicines against autoimmune diseases administered in syringes. Two further model lines depict the therapeutic areas of oncology and diabetes care. "This way we illustrate how Bosch realizes its line competence for concrete therapeutic areas, as well as for different packaging types. Our broad portfolio includes all process steps, for instance for the manufacturing of liquid drugs against autoimmune diseases - from product formulation and sterile filling on laboratory and production scale to sterilization, inspection and secondary packaging," explains Christian Treitel, head of pharma business development at Bosch Packaging Technology.

Compact solutions for product development

Biopharmaceutical production, for instance of monoclonal antibodies or hormones for the treatment of autoimmune diseases, typically requires bioreactors in different scaling ranges. The new stainless steel laboratory fermenter, developed by the Bosch subsidiary Pharmatec, is especially suited for biopharmaceutical product development and clinical studies, as well as for the first level of industrial production. The fully automated bioreactor with completely equipped periphery was developed for batch sizes up to 50 liters. It completes the existing portfolio of larger volume fermentation devices, which handle volumes of 500, 1,000 and 2,000 through to 20,000 liters, depending on the application. Pharmatec offers complete solutions for harvesting and the subsequent downstream processes, as well as for the formulation of the final injection solution. The Bosch machines are complemented through the integration of modules from specialized manufacturers with installation, testing and start-up as complete systems.



From formulation to secondary packaging: At Achema, Bosch Packaging Technology showcases an exemplary line that encompasses all process steps for the production, filling and packaging of medicines against immune diseases that are administered in syringes.

Safe filling on both laboratory and production scale

For the filling of injection solutions on a laboratory scale, a laboratory device from the FHM 1000 series is especially suited. The device includes a Human Machine Interface (HMI), a filling and weighing module each, as well as a needle movement for the filling process. The laboratory machine receives the product from the pre-validated, pre-assembled and pre-sterilized single-use filling system PreVAS. Among its key components are bag, tube and filling needles, as well as the Bosch peristaltic pump. In the version exhibited at Achema, the product bag is situated outside of the isolator, while the filling tubes are compactly and safely guided through the isolator wall via the newly developed multi-tubing port, before being connected to the filling station of the FHM.

Furthermore, the single-use filling system can be flexibly connected to production scale filling and closing machines. Apart from pre-sterilized syringes, the FXS Combi from Bosch for instance also processes nested vials and cartridges. The upstream ATO and ABO tub and bag openers can be used for fully automated opening. The filling station of the FXS Combi with two to

five positions enables fast and precise filling with all common filling technologies. As the first machine of this kind, the FXS Combi further features an integrated capping station for vials and cartridges. The flexible and fast format changes for all three packaging types are shown during live demonstrations at Achema. By combining the machine with different barrier systems such as Restricted Access Barrier Systems (RABS) or isolators, operators and products are optimally protected.

Wireless glove testing system

Glove ports make it possible to handle the products inside these barrier systems. With the new wireless glove testing system from Bosch, up to 35 gloves can be reliably tested for integrity at the same time. The test disc is manually applied to the ports from the outside and communicates with the filling machine via WLAN. The fully integrated testing system is controlled via the HMI of the filling machine, thus enabling the integrity testing to be performed in short test cycles. All data is directly recorded in the machine's system architecture, which eliminates the need for a separate laptop. A pump, which is integrated into the test disc, provides for a fully automatic pressure build-up

Drugs against autoimmune diseases

in the glove. The disc enables users to quickly and reliably measure the pressure decay according to glove-specific testing recipes. An exchangeable battery makes sure that no downtimes occur.

Downstream equipment and secondary packaging

Depending on the product, sterilizers from the Bosch subsidiary Schoeller-Bleckmann Medizintechnik (SBM) provide for sterile containers according to the steam/air mixture process after the medicines have been filled into syringes. Following sterilization, the filled syringes are inspected for particles and cosmetic defects, for instance on the AIM 8 inspection machine, and sub-



Fully integrated glove testing system: With the new wireless glove testing system from Bosch, up to 35 gloves can be reliably tested for integrity at the same time.

sequently tested for integrity. Further downstream equipment such as the ZPS accumulation system and the RIL rod insertion and labelling system complete the line by further process steps. Different primary packaging types can then be gently packed into

folded cartons on the horizontal cartoning machines from Bosch. Modular serialization solutions enable the integration of printing, verification, labeling and IT systems into new and existing lines.

Bosch's technologies are on display at Achema in Frankfurt/Main, Germany, from June 15 to 19, hall 3.1, booth C71.bis 19. Juni 2015 auf der Achema in Frankfurt



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15 – 19 June 2015: MULTIVAC at ACHEMA in Frankfurt

Flexible and reliable packaging solutions for the Life Science and Healthcare industry



At ACHEMA, which takes place in Frankfurt from 15th to 19th June 2015, MULTIVAC will present its innovative packaging, labelling and marking solutions for the Life Science and Healthcare industry, and among these will be a compact thermoforming packaging machine for packing products in small batch sizes.

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

With the R 081 thermoforming packaging machine, MULTIVAC will show a new entry-level model that is designed for packing products in small batches. The R 081 is also suitable for cleanroom applications and can be used for producing both vacuum packs and modified atmosphere packs with reduced residual oxygen content. The machine is equipped with electrical lifting units, which contribute among other things to a consistently high level of sealing quality.

In addition to this, MULTIVAC will also show a thermoforming packaging machine in the MULTIVAC Clean Design™ for the GMP-compliant packing of sterile medical products. The machine can run both flexible and rigid films as well as Tyvek® and paper-based packaging materials. MULTIVAC's proven drawer system provides for frequent, reproducible and quick format change. This machine also makes changing the cutting tool of the complete cutter significantly easier. This means that the machine is very flexible when it comes to packing different products in different batch sizes. In the in-

terests of reliable line clearance, the area for product processing is strictly separated from the area of the machine equipment. Transparent enclosures with large doors protect against environmental influences and, thanks to perfect overview of the process, they increase the security of the packaging procedure against any products being lost.

For tray packaging requirements, MULTIVAC will present the T 260 traysealer, which is a packaging system



that has been developed for the specific demands of the medical sector and pharmaceutical industry. The sealing die of the T 260 provides controlled sealing pressure and precise temperature distribution, so that a reproducible packaging procedure is assured.

As regards packing in film pouches, the C 200 TC and C 300 TC chamber machines will be presented at ACHEMA. These have permanently heated sealing bars and therefore offer a high level of process reliability and reproducibility. These chamber machines can also be calibrated and validated.

Labelling and marking solutions

In the sector of labelling and marking solutions, MULTIVAC will show the MR 335 folding carton labeller, which seals the closing tabs of medication cartons against tampering by means of sealing labels. The tabs can also be printed with serial barcodes, which are used for authenticity checking and traceability marking. The labeller features a GMP-compliant design and construction. It can be combined with various printing and monitoring systems.

A cost-effective solution for standard labelling tasks can also be seen at ACHEMA in the form of the BASELINE L 300 label dispenser.

MULTIVAC Sepp Haggenmüller GmbH & Co. KG
D 87787 Wolfertschwenden

Compact solution for high-quality granulation processes

Bosch market launch: new granulation unit Hüttlin GranuLean



- Efficient and compact granulation unit
- Consistent focus on basic pharmaceutical requirements
- Optimally harmonized components

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

At Achema 2015, Bosch Packaging Technology presents the new granulation unit GranuLean for the first time. Developed by the Bosch subsidiary Hüttlin GmbH, it combines the process steps of mixing, granulating and drying for the manufacturing of pharmaceutical granules. "The name GranuLean stands for a lean and compact machine, which can be easily integrated into production rooms and focuses on the basic requirements of pharmaceutical producers," Fritz-Martin Scholz, product manager at Bosch Packaging Technology, explains. "By concentrating on the essential basic functions within fixed dimensions, we have developed an especially efficient granulation solution." The GranuLean exhibited at Achema for instance saves valuable production room with its 6 meters length and 3.4 meters height. The new development is available for three different batch sizes and is based on Hüttlin's long-standing process technology experience.

Simplified construction, uniform Human Machine Interface

As opposed to tailor-made granulation lines, the most important functions of GranuLean are installed by default. "The high level of standardization now enables us to fulfill customer demands for a complete and quickly available system at the accustomed high quality," says Scholz. Thanks to the easy alignment of machine components on site, the granulation unit can be installed quickly and easily. All process and cleaning steps can be controlled via recipes. The operator interface is a 21-inch touchscreen with user-friendly navigation.

Smooth product flow through integrated wet mill

The process for manufacturing pharmaceutical granules begins



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

by pneumatically filling the high-shear mixer. The mixing device Gentlewing, which is driven from below, mixes and granulates the active ingredients and excipients. The high-shear mixer is emptied via the equally newly developed, integrated wet mill.

Communication between mill and Gentlewing ensures that only as much product is emptied as the mill is able to process, which prevents the mill from clogging. A pneumatic transfer pipe subsequently transfers the wet product to the GranuLean fluid bed module, where it is dried through the inflow of the proven Diskjet distribution plate. The function of process filters is crucial to obtain high yields: for this reason, Bosch has developed a new process filter, where the elements are serially cleaned with compressed air pulses. At the end of the drying process, the product is emptied by a dry mill.

Apart from the high-shear mixer, granulation can also take place in the fluid bed by using a tangential or top spray process. GranuLean is available for a containment level of up to OEB₃ (Operational Exposure Band). The machine remains closed during operation, while inflatable seals on the product containers provide for an optimum draughtproofing. Moreover, the integrated cleaning system ensures an even easier handling.

Tablets and capsules in line

Suitable handling equipment makes it possible to combine the new granulation unit to a compact line, for instance with the new tablet presses of the Manesty TPR range. Alternatively, the granule can be filled into stick packs or capsules, for example with the new GKF 2600 capsule filling machine from Bosch.

Bosch's technologies are on display at Achema in Frankfurt/Main, Germany, from June 15 to 19, hall 3.1, booth C71.



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Compact solution for high-quality granulation processes: At Achema, Bosch Packaging Technology presents the new GranuLean for the manufacturing of pharmaceutical granules, developed by its subsidiary Hüttlin GmbH.

Innovative solutions and know-how for efficient cleaning of parts and surfaces



Leading trade show parts2clean on course for success



- 13th parts2clean with a host of new and improved products and technologies
- Bilingual forum – cleaning know-how for greater efficiency

**09th - 11th June 2015: parts2clean,
Stuttgart (D)**

Effective cleaning of components and surfaces is an issue for practically every manufacturer today, not least because the bar for cleanliness is constantly being raised. At the same time the pressure on costs is also rising. So manufacturers face a twofold challenge: they have to meet specifications for cleanliness with the right technology – consistently and reliably – and they have to do so at an affordable cost. “This year’s parts2clean offers a wider range of solutions than ever before”, explains Olaf Daebler, Director of parts2clean at Deutsche Messe. The 13th Leading International Trade Fair for Industrial Parts and Surface Cleaning from 9 to 11 June 2015 brings together over 250 exhibitors from 14 countries to present products and services for the end-to-end process chain at the Stuttgart Exhibition Centre. Their displays cover a total of 7,000 square meters of exhibition space, with a notable increase in display space booked by foreign exhibitors compared with previous years. These figures indicate continuing growth for parts2clean in 2015.

Innovations across all display categories

“parts2clean 2015 will be the biggest and most international event in the history of this trade show”, declares Daebler. “Many exhibitors use the show to unveil their latest new products and improved solutions for the very first time to an international audience.” One example is a new dry cleaning plant for the efficient intermediate cleaning of power train components in the automotive industry. The plant operates without compressed air and consequently delivers enormous cost savings combined with higher process reliability and availability. Also making its debut at this year’s parts2clean is an innovative system that simultaneously deburrs components under high pressure and cleans them. And the first rod transducer for multi-frequency ultrasound will also be unveiled at the show. Designed for the 25 and 40 kHz fre-



quencies commonly used for industrial parts cleaning, it provides a space-saving and cost-saving solution for installing multi-frequency ultrasound in single and multi-chamber cleaning plants.

Innovations await visitors in other areas too, such as the automation of cleaning processes prior to the fully automatic measurement of components or solutions integrated into assembly lines. Various new developments in cleaning media will also be on show, such as a salt-free multi-metal cleaner that can be delivered at high pressure, producing a completely dry and fleck-free surface. New developments and refinements in cleaning baskets and workpiece holders make it possible to reduce process times, optimize results and cut costs. Not least because they are flexible in their application and minimize the number of times parts need to be handled or repositioned – thereby cutting costs and reducing the risk of damage. New devices for the monitoring and maintenance of cleaning baths contribute to more stable processes, especially when cleaning with water-based media. This year’s parts2clean will also showcase solutions for monitoring and documenting cleanliness at the particulate level which comply with the revised VDA 19 industry standard. And new devices and sys-

tems for detecting and measuring film residues can also be seen at the show.

Bilingual Industry Forum and guided tours

The bilingual parts2clean Industry Forum gives visitors access to one of the most popular and sought-after sources of expert knowledge on all aspects of the industrial cleaning of parts and surfaces. With a lineup of 25 presentations (in German or English, with simultaneous translation provided), the Forum program covers different aspects of industrial cleaning technology ranging from the basics to specialized topics such as cleaning media, care and maintenance of cleaning baths, conservation, passivation, corrosion protection, quality assurance and checking for cleanliness. Admission to the Industry Forum is free of charge for visitors to parts2clean.

This year’s parts2clean is again offering guided tours for visitors, first introduced at the last show. These are ideal for visitors who need to locate exhibiting firms offering solutions to very specific cleaning problems or requirements.

Surface technology at upcoming Deutsche Messe events

The next trade fairs on this theme scheduled to take place in Germany are O&S and parts2clean 2016, which run from 31 May to 2 June. The next overseas trade fairs aimed at the surface treatment industry are SurfaceTechnology INDIA, from 9 to 11 December 2015, SurfaceTreatment EURASIA, which runs from 11 to 14 February 2016, and Surface Technology NORTH AMERICA (staged in parallel with IMTS), from 12 to 17 September 2016.

Further information about parts2clean and the guided tours, as well as the full program for the Industry Forum, can be found online at www.parts2clean.de. A free admission ticket can be downloaded at www.messe-stuttgart.de/mts/p2c by entering the code p2c2015mt.

Deutsche Messe AG D 30521 Hannover

Systec & Solutions can now supply ergonomic height adjusters for TROLLEY and ceiling-mounted systems. These permit simple adaptation of the HMI system monitor height to suit different work situations and the height of the user.

Individual adaptation to work situations for TROLLEY and ceiling-mounted systems

The entire height adjuster is made of stainless steel and adjustment is performed by means of an integrated cylinder similar to those used in standard office chairs. Once the release mechanism has been actuated, the monitor can be moved up and down with a minimum of effort. For the TROLLEY MAXI, TROLLEY COMPACT and desktop systems, the height can be varied by 150 mm. Adjustment by 250 mm is possible for the TROLLEY LIGHT and 350 mm for ceiling-mounted systems – ideal for people of different heights working with HMI systems. Height adjusters are optionally available for all our TROLLEY, desktop, floor and ceiling-

mounted systems in combination with the WAVE and PILOT series.



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TROLLEY LIGHT with height adjuster
(Picture: Systec & Solutions GmbH)

Facilitating Precise, Repeatable Imaging, Measurement, and Analysis

Leica Microsystems Launches Digital Microscope Leica DVM6

Leica Microsystems launches the digital microscope Leica DVM6, which is designed for inspection, analysis, and measurement in quality control, quality assurance, failure analysis, research and development, and forensics. Integrated illumination options and PlanApo-corrected optics ensure high quality images. The design of the Leica DVM6 enables users to work with the instrument intuitively, for example, tilting the microscope head or changing the objectives with one hand. Because of the instrument's encoding, results are reproducible, and reports and documentations can be generated with the click of one button.

Georg Schlaffer,
Product Manager with

Leica Microsystems says: "Everybody can be a microscopist with the Leica DVM6. Users can easily navigate their samples because of the 16:1 zoom range, tilt the microscope head with one hand, and even change objectives while the sample stays in focus. Managing high sample throughput and routine documentation and reporting becomes easy due to the encoded parameters that are saved with the images."

In addition to the zoom range of 16:1, users have a choice of three objectives covering a magnification range between 10x and 2,350x, resolving details down to a size of 0.4 micrometers. The objectives are PlanApo-corrected and will not show color fringes over the entire zoom range. Users can change objectives with one hand and work without interruption, since the objectives keep the sample in focus. With the tiltable microscope head, users can observe samples at any angle from -60 to +60 degrees. Combined with different illumination options for various contrast methods, users can see details of the sample that might not have been revealed without tilting.

The Leica DVM6 tracks specific parameter values and saves them with the image data. For the Leica DVM6, these encoded parameters include the objective, camera, and illumination settings, sample stage position, and rotation angle of both manual and motorized movement. They can be recalled or restored any time. Encoding facilitates reproducibility and makes workflows more efficient. Users can generate documentation and reports at the touch of a button..



The Leica DVM6, for inspection, analysis, and measurement in quality control, quality assurance, failure analysis, research and development, and forensics.

Leica Microsystems GmbH
D 35578 Wetzlar

fairXperts GmbH & Co. KG appears to have hit the bull's eye with its concept for DeburringEXPO, a trade fair that's dedicated to the issues of deburring and polishing. This is not only made apparent by the already star-studded exhibitor list. The exhibitor advisory board, which was founded in March with representatives from renowned companies and research institutes, also agrees that an event of this sort was long overdue. The first trade fair for deburring and polishing technology will held at the Karlsruhe Exhibition Centre from the 13th through the 15th of October, 2015. Exhibitor presentations will be supplemented by an expert forum.

Trade Fair for Deburring and Polishing Technology, 13 to 15 October 2015

1st DeburringEXPO Evolves Successfully



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

The occurrence of burrs is impossible to avoid entirely with practically any of the conventional metalworking processes. How well pronounced the burrs are depends on various parameters, for example the utilised machining technology, as well as the quality of the tool and the material. "However, as yet neither knowledge of this issue nor the methods for removing burrs are well developed in industry, and these factors play no role at all in industrial training", reports Günter Gözl, managing director of Benseler Entgratungen GmbH. All of the representatives of the ten companies and research institutes who belong to DeburringExpo's exhibitor advisory board, which was founded at the end of March 2015, agreed on this point. "And thus a trade fair which focuses on this issue was long overdue", adds Gözl. The fact that he's absolutely right is confirmed by the exhibitor list which is already filling up with companies from inside and outside of Germany including ALFRA Alfred Raith GmbH, Alicona Imaging GmbH, ARKU Maschinenbau GmbH, ATL Anlagentechnik Luhden GmbH, AUTOPULIT, Dr. Beier-Entgrattechnik, Otto Dilg GmbH, ElpoChem AG, HK-Koti GmbH, KADIA Produktion GmbH + Co., KEMPF GmbH, Kennametal Extrude Hone GmbH, Lapmaster Wolters GmbH, Lessmann GmbH, Micro Technica Technologies GmbH, Piller Entgrattechnik GmbH,

plasotec GmbH SITEC Industrietechnologie GmbH and Timesavers International B.V.

The fact that DeburringExpo, which will be held for the first time at the Karlsruhe Exhibition Centre from 13 through 15 October 2015, has a clearly defined range of offerings, an attractive venue and an experienced organisation team make the decision in favour of participation that much easier. "For us it was decisive that DeburringExpo is strictly a technical trade fair. It addresses an issue which concerns our customers and for which we offer custom-tailored products and services in the field of precision surface solutions. As opposed to events which cover multiple issues, DeburringExpo makes it possible for us to approach customers in a much more targeted manner. One of our company strategies is to concentrate on trade fairs of this sort", explains Ralf Krieger, authorised signatory and Contract Shop Manager Europe at Kennametal Extrude Hone. "Of course maintaining customer relations and developing new customers also play an important role for us with regard to trade fair participation, but a trade fair is also the ideal opportunity for networking and exchanging experience", says Günter Gözl.

Cross-Industry and Cross-Technology Exhibitor Portfolio

With equipment, systems and tools for belt grinding, brushing, abrasive flow machining, vibratory grinding, blasting with solid and liquid media such as high pressure water jets and CO₂ snow jets, abrasive water-jet

blasting, magnetic-abrasive deburring, ultrasonic deburring, chemical bath deburring, electrochemical machining (ECM), precision electrochemical machining (PECM), electron beam machining, thermal energy machining (TEM), mechanical deburring, buffing, polish honing, electrolytic polishing, plasma polishing, laser polishing, immersion and brush polishing, as well as measuring, test and analysis systems, DeburringEXPO presents offerings which permit cross-industry and cross-technology information gathering and procurement. Deburring and polishing as services, research, training and literature are further areas for which solutions are offered at the trade fair.

Value Added through Knowledge and an Exchange of Experience

Offerings presented at DeburringEXPO will be rounded with an integrated expert forum which will make it possible for visitors to gather information about innovative deburring and polishing technologies, as well as practical examples. Benchmark solutions will also be explored, for example how costs resulting from errors can be avoided and how functional reliability can be achieved while maintaining uniformly high levels of quality. This exchange of experience amongst experts, exhibitors and visitors provides all involved parties with considerable added value.

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