

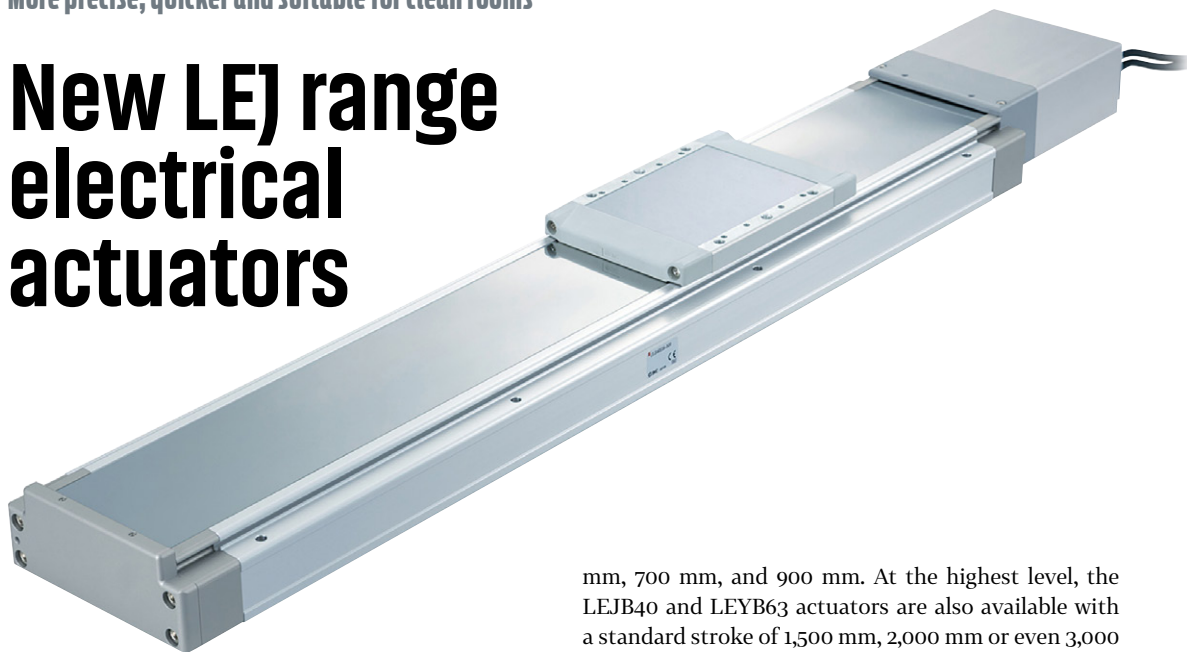


Hans J. Michael GmbH



More precise, quicker and suitable for clean rooms

New LEJ range electrical actuators



mm, 700 mm, and 900 mm. At the highest level, the LEJB40 and LEYB63 actuators are also available with a standard stroke of 1,500 mm, 2,000 mm or even 3,000 mm (LEJB63).

SMC is increasing its offer of LEJ range electrical actuators with many models: for example, the LEJSH precision model offers a much improved positioning accuracy of ± 0.01 millimetres. Many new models have the prefix 11 in their name. They are suitable for use in ISO 4 class clean rooms. New LEJS40/63 type models have higher spindle pitches and thus 50% higher maximum speeds. As part of the expansion of the range, the standard stroke variants have been much more narrowly graduated. All actuators of the LEJ range are equipped with a double linear guide which can handle eccentric loads and reduce deviations. They offer a high degree of rigidity and are suitable for industrial plants with any kind of transfer and assembly use. A low casing cross-section and load centre of gravity also make the actuator very compact.

Options & extensions in detail

The new electrical actuators of the LEJSH range offer an improved positioning precision of ± 0.01 mm compared to their equivalents in the LEJS range, which offer ± 0.02 mm. The no-load running was also reduced from max. 0.1 mm to max. 0.05 mm. They are also available in a clean room version.

Versions with a higher spindle pitch are now offered for the new actuator spindles in the sizes LEJS40 and LEJS63. The maximum speeds have thus been increased from 1,200 to 1,800 mm/s. The following are available:

- LEJS40: spindle pitch 24 mm, maximum speed 1,800 mm/s.
- LEJS63: spindle pitch 30 mm, maximum speed 1,800 mm/s.

All models of the LEJS range are now also available as clean room versions. With a total of 26 new standard stroke variants, the LEJS as well as the LEYB ranges were clearly graduated more narrowly. Users can now choose from 44 standard actuators. All models are also available in the standard strokes of 400

Two actuator types for higher loads or more speed

SMC uses the suffix S or B to differentiate the actuator types of the LEJ range of electrical actuators. LEJS refers to versions with a ball screw which can handle horizontal work loads up to 85 kg.

LEJB refers to versions with quicker belt actuators. With a maximum speed of up to 3,000 mm/s, horizontal loads up to 20 kg can be moved with a position repeatability of ± 0.04 mm. Regardless of the type of actuator, the attainable accelerations/decelerations are 20,000 mm/s².

Regarding installation, the actuators of the LEJ range are characterised by the little effort required. They are attached to the main casing. The outer casing does not need to be removed. The electronic signal transmitter of the D-M9 and D-M9W ranges with a two-coloured actuator help to find the right signal transmitter position. LEJ actuators are equipped with high-performance AC servo motors with incremental or absolute encoders. A large selection of servo amplifiers ensures fast commissioning. All actuators can also be equipped with motors from many reputable manufacturers in the „open flange - no motor“ version.

Application areas

The LEJ range electrical actuators from SMC are perfect for general industrial plants such and pick and place applications, loading and unloading work pieces (vertical and horizontal transfer), high speed tracking controls or the application of adhesive. The prefix 11 denotes a clean room version. These models are equipped with a connection for vacuum pumps. Abrasion, which can happen in case of continual operation of the actuators, can be sucked off and discharged immediately. Important applications for these model versions are, for example, in the semi-conductor and LCD industry.

SMC Pneumatik GmbH
D 63329 Egelsbach

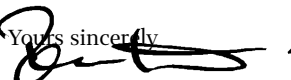
New LEJ range electrical actuator	1
M+W Group wins prestigious SMIC Supplier of the Year Award	3
Innovative technique meets innovative spirit – or was it vice versa?	4
Particle Measuring Systems Continues Environmentally Friendly Approach	5
Stainless steel or chrome-vanadium?	6
Ground-breaking ceremony in Kirchzarten	8
International pharma specialists meet at Bosch	9
Vetter is a winner of the AbbVie TRIUMPH AWARD	10
DSM Sinochem Pharmaceuticals supports fight against superbugs and welcomes the clear recommendations of the AMR Review	11
Double-digit growth for Bosch Packaging Technology	12
Inauguration ceremony at the new US site	14
MICROBIAL MONITORING IN ISOLATOR	15
Cleanroom Award 2016	15
Material analysis – The world of plastics is amazingly diverse	16
Laboratory 4.0 – The smart laboratory of the future	18
Solutions as diverse as the tasks in industrial part cleaning	20
PAS-X UGM comes round again in the USA	21
Cherwell increases commitment to pharmaceutical microbiology in Republic of Ireland	21
Clean solutions for the consistent and effective cleaning of parts and surfaces	22
Modular CO2 Transmitter Now Measures CO2 Concentration up to 50,000 ppm	23



Dear readers, dear subscribers,

now it's the beginning of June 2016 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

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

China's leading semiconductor foundry presents M+W Group with an award for the delivery of a total turnkey cleanroom solution ahead of schedule.

M+W Group wins prestigious SMIC Supplier of the Year Award

The largest and most advanced semiconductor foundry in mainland China, the Semiconductor Manufacturing International Corporation (SMIC), has awarded M+W Group its prestigious Supplier of the Year Award. The award was presented to M+W Group for its delivery of a total turnkey cleanroom solution two weeks ahead of schedule.

SMIC's annual Supplier of the Year award is provided to suppliers who go above and beyond the call of duty in order to exceed expectations. Mr. Wang Lin from SMIC states: "We were very impressed with the way the M+W team delivered on our requirements for a total cleanroom solution. The project required M+W to be flexible and work with the various partners at all levels. All communications and tasks were handled to the highest standards of professionalism, and, most impressively, we received exactly what we required two weeks ahead of the deadline."

SMIC is one of the leading advanced semiconductor manufacturers in China and a major player in the recently announced China Semiconductor Initiative. As its supplier, M+W Group is exceptionally proud and honored to be the recipient of the SMIC Supplier of the Year Award. "This is a fantastic achievement by the M+W team, and one that goes to prove our ability to deliver highly complex turnkey cleanroom solutions both on time and within budget," explains Thomas Bernhardt, Managing Director Asia at M+W Products, a subsidiary of M+W Group. "Throughout the project, SMIC required a variety of changes to be made to the original specifications. Our team of highly trained professionals were able to implement the changes and still deliver ahead of the deadline. As a result, SMIC were able to use the cleanroom ear-



lier than expected, enabling them to deliver integrated circuitry foundry and technology services to clients in a quicker timeframe than planned."

For M+W Group the award is also the result of the company's long and successful history in China. M+W Group has been present in China since 1994 and has successfully delivered more than 300 challenging projects. With 450 highly qualified construction and design personnel within the region, M+W Group considers the strong relationships with its Chinese customers to be the foundation for the continued delivery of advanced technology project solutions.

M+W Group GmbH
D 70499 Stuttgart



Herbert Blaschitz (Business Unit CEO ATF / M+W Group) - David Liao (Facility Director / SMIC) - Ben Wang (Project Manager / M+W Products) - Thomas Bernhardt (Managing Director Asia / M+W Products) - Wang Lin (Facility Manager / SMIC).

Photodynamic disinfection as an innovative procedure awarded with the ECONOVIUS 2016. Ortner Reinraumtechnik brings together innovation partners.

Innovative technique meets innovative spirit – or was it vice versa?



Author: Barbara Fischer-Reineke



Josef Ortner and Carsten Moschner talking to Barbara Fischer-Reineke

On 29th March, 2016, the new procedure to prevent contamination known in Vienna under the name of PDc-technology was awarded with the ECONOVIUS 2016. This innovation prize of the Austrian Chamber of Commerce carrying a value of 15,000 € was awarded to the company Ortner Reinraumtechnik GmbH in Villach. Ortner developed together with some other research partners a new procedure, the so-called Photodynamic Disinfection certified Technology (PDcT), which is able to securely disinfect within a few minutes persons including their clothes without putting them at risk. With the help of a manlock and the thereby necessary technological procedures it is now possible for the people working in the cleanroom area to enter different cleanroom classes or security zones without having to change their clothes each time.

You can leave your suit on ...

The human being is and remains the most important source of danger in all cleanroom productions. Employees in sensitive areas like intensive care units or quarantine offices or in the food industry often have to protect themselves or the products against germs or bacteria. With the development of PDcT things are getting more simple. The quick disinfection is reached via a natural way with the help of a specific colorant in the clothes and the radiation through light. Scientifically considered photodynamics is the reaction of a colorant on a special wavelength of the light. With the help of this reaction the nature generates the energy-rich and reactive "singlet oxygen" which reacts with many unwanted germs and prevents their growth.

In the case of the photodynamic disinfection this highly reactive oxygen is well-directed used to destroy germs and viruses under the influence of a source of light. The used light is in the visible sector so that there is no danger of radiation sources for the users. Since the year 2015 the qualities of photodynamic disinfection has been available in the form of clothes. Thus it is for the first time possible to decontaminate people within their working environment and consequently to minimize the transfer of germs through humans. Scientific examinations confirm a controlled rate of germ decimation of 90 % in 3.7 minutes. The degree of efficiency can be increased by up to 99% according to light intensity and length of radiation.

World novelty made in Austria with German partners

The development of the PDc-technology lasted over 6 years and was conducted in tight cooperation between economy and science. As close partners the following companies worked together: the specialists for cleanroom technology of Ortner Reinraumtechnik GmbH, the garment specialist Dastex Reinraumzubehör GmbH & Co. KG and the colorant producer M. Dohmen. The basic research in the sector of microbiology and process engineering was realized by the scientific partners of the Technical University of Graz and the Research Center Pharmaceutical Engineering in Graz. Together with the Joanneum Research GmbH the right light technique was developed. The examination of its efficiency was done by the Fraunhofer-Institut IPA, the TITV Greiz – Institute for special textiles and flexible materials, the German Institutes for textile and fiber research (DITF) and the HIT Hohenheim Institut für Textilinnovation GmbH (Institute for textile innovation).

Visionary concept promoted with heart and soul

Whereas the new technology in the sector of pharmaceutical and food production has already been used successfully, the PDcT has to be also used in clinical application areas like oncology, neantology, intensive care, ward rooms or post-rehabilitation centers for transplantation patients. Josef Ortner, chief executive officer of Ortner Reinraumtechnik GmbH, whom we interviewed at the LOUNGES in Stuttgart, was very happy about the recognition which was given to this innovation by this prize award. "We are of course really happy about this prize which we see as a recognition and to a certain degree as an end to our interdisciplinary development project. The developed procedure will now find its way in the different application areas. The numerous enquiries show that there is enough interest." Nevertheless Ortner, who has been promoting the project for many years showing a strong commitment to this project, clarifies as well: "Without the good and tight cooperation with our partners Dastex

Innovative technique meets innovative spirit – or was it vice versa?

and Dohmen as well as the participating scientific institutes this innovation wouldn't have been possible."



Open handling with chances as well as with weak points

Carsten Moschner, chief executive of Dastex Reinraumzubehör GmbH & Co. KG confirmed that, instead of an ambition of monetary success, it was more a search for something completely new in the sector of apparatus engineering as well as clothes in order to display one's courage to think laterally. "Cleanroom technology is a matter of trust and we also wanted to shape to a certain degree an innovation culture which I consider is sometimes a bit weak in our industry sector. As far as this innovation is concerned we aren't only interested in a show effect à la world novelty. In fact with this innovation we want to take care of all chances on the one hand and on the other of all weak points and frontiers of this technology which might still be there. It is not helpful to think that the PDcT would do all the disinfection work alone from now on. The human has still to be able to use critical thinking skills."

Following the issue or even better thinking laterally is what Josef Ortner wants to practice even more in the future. The chief executive with visionary potential thinks that there is many an innovation field in the cleanroom sector, which is still unexplored. We are curious about how it's going on.

reinraum
online

reinraum online
Mozartstraße 45
D 70180 Stuttgart
Telefon: +49 711 9640350
Telefax: +49 711 9640366
E-Mail: info@reinraum.de
Internet: http://www.reinraum.de

Global company expands environmental commitment with multiple programs at Boulder Headquarters.

Particle Measuring Systems Continues Environmentally Friendly Approach



Particle Measuring Systems (PMS), a global expert in contamination monitoring, has been actively monitoring and reducing their own environmental impact over the last few years. The latest steps in their Corporate Social Responsibility (CSR) approach include installing new electric car charging stations on site for employee use, installing an ultra-pure water (UPW) recycling system (that saves approximately 40% of UPW water use), and actively participating in Boulder's zero waste program by implementing a composting program and training all Boulder employees.

Past CSR initiatives have included installing new lighting that reduces wattage used, eliminating white room air handles, and implementing a comprehensive recycling program that includes electronics. Areas where lighting has been changed have had a 41% reduction in watts used. The change was made by removing T-12 lighting and replacing it with T-8 high efficiency lighting.

The white room air handlers that PMS used in the past accounted for 17% of the building's total electric bill. PMS was able to remove them and retrofit the space to deliver tempered air without them, with no additional energy consumption.

Since January 2013, Particle Measuring Systems has sent 21,550 pounds of electronics and parts/materials to a responsible electronics recycling company that de-manufactures electronics, and sepa-

rates the components by category. The items are then recycled and kept out of the landfills. PMS also recycles office paper on an individual basis as well as cardboard.

"We are participating in all these programs for several reasons," said John Mitchell, President of Particle Measuring Systems, "it is the right thing to do, it saves us money, and it supports our employees and the environment."



Particle Measuring Systems Germany GmbH
Pallaswiesenstr. 63
D 64293 Darmstadt
Telefon: +49 6151 6671 632
Telefax: +49 6151 6671 634
E-Mail: rjansen@pmeasuring.com
Internet: http://www.pmeasuring.com



Different materials in comparison: Materials used in cleanrooms not only have to withstand mechanical strains but also offer a maximum of security regarding sterility and absence of germs or other product risks. And concerning this matter there are striking differences between stainless steel and chrome vanadium.

Stainless steel or chrome-vanadium?

Author: Matthias Gaul

The experience always shows that many companies in the pharmaceutical and food industry still work with chrome-vanadium- alloys even in cleanrooms or hygienically sensible areas, whereas only a small fraction works with stainless steel tools. But is that really important? Are the materials so different? There is a clear answer: yes. Thus for example in matters of hardness of the tools and consequently the torque capacity as well as the abrasion and wear resistance. In view of product protection as well as disinfectability and sterilisability chrome-vanadium and stainless steel also differ regarding their thermic capacity, the corrosion and the resistance against mechanical strains.

“Of course there are not only differences between chrome-vanadium and stainless steel alloys but there are also differences within the class of stainless steel,” says Steffen Hild, managing director of the cleanroom specialized CAT Clean Air Technology GmbH in Stuttgart. In the case of stainless steel or, when using the correct terminology, rust-resistant steel there are five alloying structures which are in turn dependent on the components of steel like chrome, carbon, nickel and molybdenum:

- austenitic rust-resistant steel
- martensitic rust-resistant steel
- ferritic rust-resistant steel
- precipitation-hardening rust-resistant steel.

The following comparison is limited on chrome-vanadium as well as on the martensitics and austenitics. Besides similar alloying components as they are given regarding the austenitics martensitics have an excellent characteristic which they almost predestine to be used as material for tools: They can be thermally hardened which is not the case regarding the austenitics.

Hardness of the steel

The hardness of a tool is relevant especially regarding two reasons. Thus for example regarding the question what a tool shall accomplish. In most cases it fulfills the task to transfer a torque or a force on another component. If the tool deforms hereby because it cannot withstand the necessary forces, one can instantly dispose of it – thus for example often used tools like fork-ring-keys or screwdrivers. The abrasion hardness and wear resistance are also very important. As in sensitive production areas metal particles due to abrasion should not develop or even get in touch with the end product. This is essential particularly in the pharmaceutical and food sector but also in microelectronics – namely under quality aspects as well as regarding the process-risk-analysis.

	„Building center tools“ / industry tools	„Normal“ stainless steel tools	„High-quality“ stainless steel tools
Material	Chrome-vanadium	1.4301 (austenitic, not hardenable)	1.4021 (martensitic, hardened)
Hardness in °HRC	45 ± 5	32 ± 7	47 ± 3
	++	---	+++
Torque capacity	+++	---	+++
Abrasion hardness/wear resistance	0	--	+++

Cleaning, disinfection and sterilisation

The industrial requirement regarding the cleaning of tools is at least a cleanliness on the basis of the visual effect. Contamination adhesions on the surface have to be removed considering the product

Edelstahl oder Chrom-Vanadium?

protection. In the case of higher microbiological requirements like in the food or pharmaceutical sector it is impossible to avoid disinfection and sterilisation of the tools.

	„Building center tools“ / industry tools	„Normal“ stainless steel tools	„High-quality“ stainless steel tools
Material	Chrome-vanadium	1.4301 (austenitic, not hardenable)	1.4021 (martensitic, hardened)
Cleaning	-	+++	+++
Disinfection	--	+++	+++
Autoclaving	---	+++	+++

Corrosion and autoclaving

What leads to corrosion in the case of chrome-vanadium alloys is an electrochemical reaction or rather a liquid which serves as an ion exchanger. The top layer of the material has a moderate corrosion protection as long as it is undamaged. But already the mechanical strain on the tools leads to micro-fissures in the surface which can then quickly corrode. Later on it often happens that the surface peels off at least partially. The disinfection with aggressive mediums also promotes the process of corrosion, because the popular mediums are a “better” ion exchanger.

Rust-resistant steel sorts like martensites and austenites have a clear advantage in this matter because of the immanent passive layer of the material as this layer encloses the material like a regenerative protective cover. Similar to aluminium this protection is an oxide layer, more precisely a chrome-oxide-layer. If the protection layer is damaged, the material below it oxidates with oxygen and generates a new layer. The passive layer is comparatively inert and thus offers an effective protection against corrosion.

Looking finally at the process of autoclaving there is a further disadvantage of chrome-vanadium. As this material withstands only temperatures of nearly under 100 degrees Celsius. If the temperatures are higher, the surface of the material peels off what inevitably leads to corrosion.

Conclusion

Product protection and life cycle of cleanroom tools are extremely dependent on the material selected. In fact the respective material has to meet the mechanical requirements of a tool, but in areas critical for production the cleanliness and hygiene requirements are also of decisive importance. “As tools used in cleanrooms have to be regularly disinfected and sterilised, tools made out of martensite steel sorts are to be favoured over austenites and more than ever over chrome-vanadium in the sense of an effective product protection,” recommends Steffen Hild, general manager of CAT.



CAT Clean Air Technology GmbH
 Motorstraße 51
 D70499 Stuttgart
 Telefon: +49 711 365919934
 E-Mail: ingolf.schatz@catgmbh.de
 Internet: <http://www.catgmbh.de>



Testo creates 60 new jobs in the Black Forest until the end of this year

Ground-breaking ceremony in Kirchzarten



With the ground-breaking ceremony on 10th May 2016 Testo AG started its fifth extension at the industrial location of Kirchzarten. In the following stage of construction additional office space, workshops and conference rooms as well as the extension of logistics and transport with pass through are to be realized at the local subsidiary, Testo Industrial Services, until December 2016. With this extension Testo AG is creating 60 additional jobs in the region of Breisgau-Hochschwarzwald.

Total sales of Testo Industrial Services increased by 19.6% in 2015

With a nearly 20% sales increase compared to the year before Testo Industrial Services has had the most successful business year since the foundation of the company. The number of growth of the subsidiary has been constantly the same for years. The approx. 300 employees in Kirchzarten are familiar with extensions of the existing office building. Already in 2006, 2011 and 2013 the office building erected in 2004 was enlarged by an additional labor and office space. Chief executive Jürgen Hinn wants to continue this positive development in the future: "We are planning to achieve double-digit sales growth in the upcoming years as well."

The third tower in Kirchzarten

In the upcoming phase of construction Testo will realize the "third office tower" by the end of the year. This tower will adapt to the other two already existing towers as far as the frontal view is concerned. With an additional 1.350 sqm there will be a future utility space of nearly 8.000 sqm in the office building of Testo Industrial Services. It is planned to move in after the inspection is accepted in the first quarter of 2017.

Testo AG – job creator in the region

Testo Ag headquarterd in Lenzkirch in the Black Forest is the world's leading specialist in the sector of portable and stationary measurement solutions. 2.500 employees in 32 subsidiaries around the globe research, develop, produce and merchandise for the high-tech company. In Germany Testo employs currently over 1.350 employees. With its various new buildings and extensions at the locations of Lenzkirch, Titisee and Kirchzarten the specialist of measuring technology has created capacities for around 900 additional jobs in the region of Breigau-Hochschwarzwald since 2004.



Wir messen es. 

Testo Industrial Services GmbH - Deutschland
Gewerbestr. 3
D 79199 Kirchzarten
Telefon: +497661/90901-8000
Telefax: +497661/90901-8010
E-Mail: gmp@testotis.de
Internet: <http://www.testotis.de>

Pharmatag 2016

International pharma specialists meet at Bosch



- Symposium: lectures, discussions and new technologies
- Pharmaceutical line competence: Bosch showcases new solutions
- 300 participants from all over the world

Connected industry and its opportunities for pharmaceutical production – 300 international pharma experts discussed this topic from 10 to 11 May in Crailsheim, Germany. “Pharmatag”, hosted by the division Packaging Technology, already took place for the eighth time. With 50 percent more guests from the pharmaceutical, biopharmaceutical and process technology industries, the symposium achieved record attendance. “Pharmatag 2016 offered the 300 participants from all over the world a versatile mix of lectures, podium discussion and new technologies,” said Joachim Brenner, general manager at Bosch Packaging Technology in Crailsheim. “The growing number of participants of this triannual event shows that Bosch Packaging Technology plays a leading role in the pharmaceutical industry and the high customer demand for events like this.”

Focus on pharmaceutical line competence

On day one, the guests of Pharmatag had the opportunity to look behind the scenes of the Crailsheim production facility and to receive first-hand information about Bosch’s pharmaceutical line competence as well as current portfolio expansions. A special highlight was the launch of the new ALF 5000 filling and closing machine for ampoules and injection bottles. Apart from an output of 600 containers per minute, the machine features high flexibility and process safety.

The second day with lectures and a podium discussion was opened by Friedbert Klefenz, President of Bosch Packaging Technology. In his key note speech, Prof. Thomas Bauernhansl, head of the Fraunhofer Institute for Manufacturing Engineering and Automati-

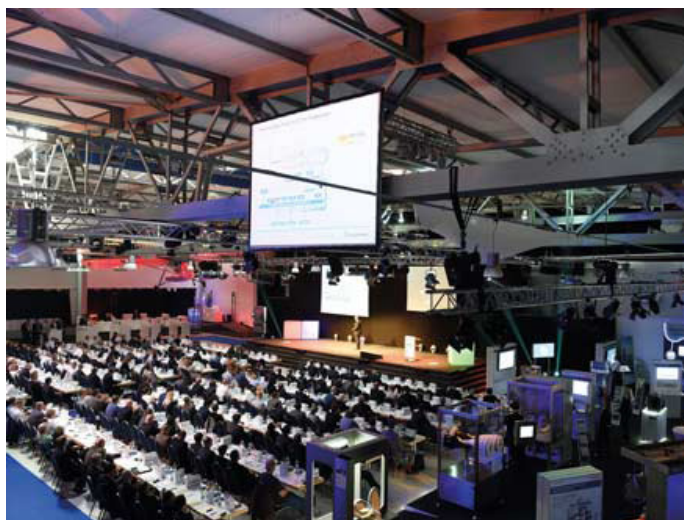
on, and the Institute of Industrial Manufacturing and Management at the University of Stuttgart, gave insights into the opportunities of industry 4.0, as well as an outlook on the future of pharmaceutical production.

Representatives of the companies AbbVie, Eli Lilly, NNE Pharmaplan, Roche Diagnostics and Vetter Pharma reported on unusual projects, current challenges and future trends, such as filling of highly potent pharmaceuticals and innovative approaches for the development of parenteral dosage forms. The subsequent podium discussion addressed quality, flexibility and industry 4.0 in pharmaceutical manufacturing. Claudia Petersen, Global Director Business Development at Gerresheimer, led through the program.

CPI software for connected serialization

Apart from numerous filling machines and lines for liquid pharmaceuticals, the participants also received information about exterior washing of vials and ampoules (RAN 3080), the combination of visual inspection technology and leak detection (AIM 3000), matching downstream equipment (RIL 3010), as well as special customer projects. Secondary packaging and serialization solutions completed the presentation of Bosch’s pharmaceutical line competence.

Moreover, Bosch showcased further industry 4.0 application possibilities for the pharmaceutical industry. Combined with the CPI software from Bosch, Track & Trace solutions can be integrated into the company IT in a multi-level process. This way, manufacturers are not only able to process the entire order management; they also



Pharmatag 2016: international symposium in Crailsheim, Germany: On the second day, several lectures about unusual projects, current challenges and future trends as well as a podium discussion addressing quality, flexibility and industry 4.0 in pharmaceutical manufacturing complemented the program.



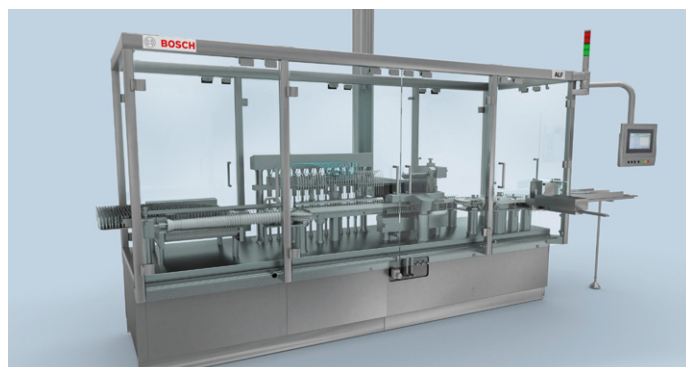
Looking behind the scenes: On day one, the guests of Pharmatag had the opportunity to look behind the scenes of the Crailsheim production facility and to receive first-hand information about Bosch’s pharmaceutical line competence as well as current portfolio expansions.

International pharma specialists meet at Bosch

control both import and export of the serial numbers. All relevant data is available in the company network and can be transferred to regulatory or company-owned databases according to regulatory requirements.

A further important part of Bosch's line competence consists in after-sales services, which support customers in flexibly adapting their existing equipment to future market requirements.

General manager Joachim Brenner was satisfied with the outcome of Pharmatag 2016, "Not long ago we hosted the Meet & Match event of BIOPRO Baden-Württemberg, and for the last two days we welcomed representatives of the leading international pharmaceutical companies. This shows the importance of the Bosch Packaging Technology site in Crailsheim for the industry – regionally and internationally."



Launch at Pharmatag 2016: ALF 5000 filling and closing machine for ampoules and injection bottles: Apart from an output of 600 containers per minute, the new ALF 5000 features especially high flexibility and process safety.



BOSCH
Technik fürs Leben

Bosch Packaging Technology
Stuttgarter Straße 130
D 71332 Waiblingen
Telefon: +49 711 81158502 Telefax: +49 711 81158509
E-Mail: christin.poenisch@bosch.com Internet: <http://www.boschpackaging.com>

Leading CDMO claims prestigious customer award from one of the top-20 biopharmaceutical companies

Vetter is a winner of the AbbVie TRIUMPH AWARD

AbbVie, one of the world's leading biopharmaceutical companies has awarded Vetter, a leading contract manufacturing and development organization (CDMO), the TRIUMPH AWARD for 2015. The award was granted for meeting AbbVie's 'predetermined high-level demands of service'. Vetter received this prestigious award as a contract manufacturer in the category Third-Party Manufacturers - Supplier of the Year. Recently, Vetter announced that the company won two other coveted awards, the WorldStar Award 2016 for its syringe closure system Vetter-Ject®, and the 2016 CMO Leadership Award in four categories including, quality, capabilities, expertise, and compatibility.



Troy Carpenter (President Vetter Pharma International USA - third from right), Casie Thomas (US Key Account Manager), Martin Schwab (Customer Project Manager - second from left) and Alexander Osswald (Team Leader Central Planning - first from left) accepted the Award in a ceremony in April 2016 representing the Vetter project team. They are joined by AbbVie's Terry Simmons (Vice President of Procurement - second from right), and Jose Sevilla (Program Director - first from right).

The AbbVie TRIUMPH AWARD was created to acknowledge contract service companies whose efforts are 'well-aligned with the company's business strategy, and make an important contribution

to AbbVie's strategic vision on a long-term basis'. With this award, granted within a field of more than one thousand contractors, the company recognizes its top performing contract suppliers for efforts that consistently add measurable value, and regularly exceed best-in-class performance on behalf of AbbVie and patients who come to rely on their products. Vetter received this prestigious award as a contract manufacturer for 2015 in the category Third-Party Manufacturers - Supplier of the Year. This recognition was achieved by meeting the predetermined high-level demands of service AbbVie has come to expect that is 'consistently above-average'.

"The winning of this award is especially significant for Vetter as it recognizes our continuing efforts to provide our customers a high-level of service, and it is particularly gratifying since it is from one of the world's leading biopharmaceutical companies," said Vetter Managing Director Peter Soelkner. "This award is a reflection of the value that Vetter brings to the biopharmaceutical industry, and consequently to patients worldwide, and is yet another affirmation that Vetter continues to exceed the expectations of our peers in areas of critical importance to their business." In a speech honoring Vetter for the award, AbbVie highlighted the importance of the good partnership it has forged with Vetter, specifically noting the achievement of a high number of commercial batches, as well as the many project activities performed on the company's behalf.

Vetter Pharma International GmbH D 88212 Ravensburg

DSM Sinochem Pharmaceuticals supports fight against superbugs and welcomes the clear recommendations of the AMR Review

DSM Sinochem Pharmaceuticals (DSP) welcomes the final report of Lord O'Neill's global AMR Review, which lists concrete interventions to fight antimicrobial resistance (AMR) and the drug resistant superbugs it creates. DSP fully supports these measures. Guided by its brand promise "Quality. Reliability. Sustainability.", DSP has been advocating for more transparency in the value chain and to stop irresponsible production of antibiotics. In line with the AMR Review recommendations, DSP is promoting the use of the best and cleanest available technology, dedicated waste water treatment plants and antimicrobial activity testing, to ensure clean and high quality production.

Lord Jim O'Neill's global Review on AMR sets out its final recommendations, providing a comprehensive action plan for the world to prevent drug-resistant infections and defeat the rising threat of superbugs – something that could cost 10 million lives a year by 2050, the equivalent of 1 person every 3 seconds, and more than cancer kills today.

DSP is glad to see that the AMR Review addresses the role of irresponsible antibiotics production and unnecessary pollution; something that has long been missing in the public debate. The irresponsible manufacturing of antibiotics forms a particular risk for the acceleration of antimicrobial resistance (AMR) via the uncontrolled release of antibiotics into the environment. Quantities of concentrated active compounds disposed via this route, particularly water courses downstream of production facilities, can show marked concentrations of antimicrobial activity and risk becoming breeding grounds for resistance.

DSP cannot accept that a life-saving drug may become less effective. It therefore demands that the industry to stop buying, making and selling irresponsibly made antibiotics. DSP very much welcomes the recommendation of the AMR Review that stipulate using the best available technology, dedicated waste water treatment plants and the execution of antimicrobial activity tests to ensure returned water is truly clean and safe. Measures that some responsible antibiotics producers, including DSP, have already implemented at their sites.

DSP also stipulates that in the short run, an industry label for responsible use and manufacturing of antibiotics can help to take quick and effective action, much like we have seen in other industries. Ultimately, such measures should become part of existing frameworks such as Good Manufacturing Practices (GMP).

Karl Rotthier, CEO of DSM Sinochem Pharmaceuticals said: "In 2013, we were the only company raising the issue of pollution from antibiotics production. I am glad to see that today this topic has become part of the global debate! DSP is committed to following the recommendations of Lord O'Neill's Global Review on AMR and will continue to advocate for responsible and clean production. We all owe it to the world to produce these essential life-saving medicines in the most responsible and sustainable way possible."

Lucas Wiarda, Global Marketing Director and Head of the Sustainable Antibiotics Program of DSM Sinochem Pharmaceuticals said: "I am very happy to see pharma pollution getting the attention it needs. This is the area where we as the industry must take urgent action and can make a difference in short time. At the same time it is imperative that we continue to address the global issue of AMR in line with the 'one-health' approach, addressing human and veterinary use but also pollution from production. The AMR Review, led by Lord Jim O'Neill, quickly became a unique internationally respected institute. Their reports have helped to raise awareness for AMR in the public, while their proposed interventions from an opportunity for the entire industry to take responsibility, define solutions and ensure a positive contribution to society. I am hopeful that their recommendations will be quickly adapted by politics, the public at large and the industry."

DSP has long been vocal about the role of the industry in antibiotic resistance and the need to use the cleanest production technology and dedicated waste water treatment plants in combination with antibiotic water testing. These basic requirements for clean and sustainable antibiotics production are implemented at all DSP sites.

These efforts are shared in more detail in the annual Sustainability Report of DSP, available from the company website www.dsm-sinochem.com.

AMR: a global health threat

Antimicrobial Resistance (AMR) is one of the biggest health threats facing mankind, and the imperative for action is growing at both an individual and a global political level. Progress on both of these fronts is needed in order to tackle this threat, and this cannot be limited to action on human and agricultural use. It must also include action to ensure that manufacturing practices are improved and the quantities of APIs reaching the environment through waste are reduced. The human and economic cost of inaction could mean up to 10 mio. deaths per year from AMR alone and a cumulative hit to the world economy of 100 trillion USD, if we do not curb resistance and find long-term solutions to producing, using and disposing of antibiotics responsibly.

DSM Sinochem Pharmaceuticals is the global leader in Sustainable Antibiotics and next generation statins. Our employees worldwide work together to deliver cutting edge generics solutions that help to keep customers ahead of the competition.

Headquartered in Singapore, the group has operations in China, India, Egypt, the Netherlands, Spain, the US and Mexico.

DSM Sinochem Pharmaceuticals Netherlands B.V.
2613 AX Delft Nederlande

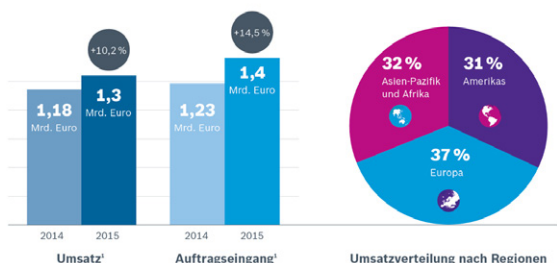
Three acquisitions in the food sector

Double-digit growth for Bosch Packaging Technology



- Sales rise by 10.2 percent in 2015 to reach 1.3 billion euros
- Order intake is 14.5 percent higher than 2014
- Executive board expects moderate growth for fiscal 2016
- Complete lines and Industry 4.0 solutions are strategic areas of growth

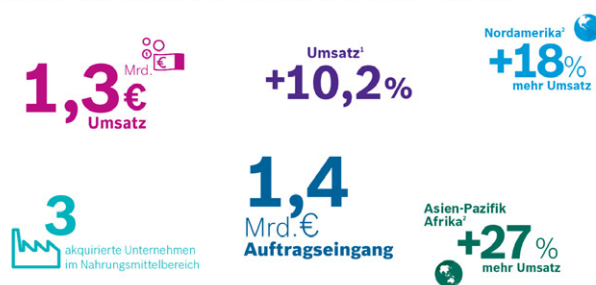
BOSCH PACKAGING TECHNOLOGY GESCHÄFTSJAHR 2015 UMSATZ UND AUFTRAGSEINGANG



¹ Nominales Wachstum gegenüber Vorjahr in %



BOSCH PACKAGING TECHNOLOGY HIGHLIGHTS DES GESCHÄFTSJAHRES 2015



¹ Nominale Veränderung gegenüber 2014, ² Wachstumsrate gegenüber Vorjahr 2014



Double-digit growth for Bosch Packaging Technology: Bosch Packaging Technology increased its sales from 1.18 billion euros in 2014 to 1.3 billion in 2015, representing nominal sales growth of 10.2 percent. Order intake at the Bosch division also rose over the same period, increasing by 14.5 percent in nominal terms from 1.23 to 1.4 billion euros.

Bosch Packaging Technology increased its sales from 1.18 billion euros in 2014 to 1.3 billion in 2015, representing nominal sales growth of 10.2 percent (3.1 percent when adjusted for currency effects). This puts the machine manufacturer – one of the leading providers of processing and packaging technology solutions – ahead of its competitors. According to industry association VDMA, the German manufacturers were able to achieve nominal sales growth of just 2.8 percent on average. Order intake at the Bosch division also rose over the same period, increasing by 14.5 percent in nominal terms from 1.23 to 1.4 billion euros. Adjusted for currency effects, this corresponds to an increase of 7.2 percent. As of the end of the year, Bosch Packaging Technology employed some 6,200 associates at more than 30 locations worldwide. “We are satisfied with our double-digit rise in sales, particularly given the modest growth of the sector as a whole. In 2015, we were again able to increase our market share,” summarizes Friedbert Klefenz, president of Bosch Packaging Technology. He anticipates moderate growth for fiscal 2016.

Strongest growth in the Asia-Pacific region

Sales in Europe declined slightly in 2015, ultimately accounting for 37 percent of total sales. In North America, sales grew by almost 18 percent – remarkable given the generally stagnant situation in

Business development is encouraging. In North America, sales grew by almost 18 percent. Latin America saw sales growth of just below 25 percent. Part of Bosch Packaging Technology’s growth strategy is to strengthen its position through strategic acquisitions. In addition to founding a joint venture with Indian company Klenzaid in 2015 (focus on pharmaceuticals), last year the company acquired three further enterprises in food: Osgood Industries Inc. in Oldsmar, Florida and the two sister companies Kliklok-Woodman Corporation, headquartered in Decatur, Georgia (U.S.), and Kliklok International Ltd. based in Bristol, England.

the machine manufacturing market. Overall, North America now accounts for 27 percent of total sales. Latin America saw sales growth of almost 25 percent. At the continental level, Bosch achieved its greatest growth – somewhat above 27 percent – in Asia-Pacific and Africa. In total, Bosch Packaging Technology generated some 90 percent of its sales outside Germany in 2015. Emerging markets are thereby playing an increasingly important role.

Acquisition of three companies in the food sector

Part of Bosch Packaging Technology’s growth strategy is to strengthen its position through strategic acquisitions. In addition to founding a joint venture with the Indian company Klenzaid in 2015 (focus on pharmaceuticals), last year the company acquired three further enterprises in food: Osgood Industries Inc. in Oldsmar, Florida at the end of May 2015 and, in December, the two sister companies Kliklok-Woodman Corporation, headquartered in Decatur, Georgia (U.S.), and Kliklok International Ltd. based in Bristol, England. Bosch Packaging Technology is thereby continuing to expand its position in the pharma, food, and confectionery sectors and, above all, strengthens its expertise as a complete solution provider. The companies acquired in 2015 have not been consolidated on the balance sheet for that year.

Double-digit growth for Bosch Packaging Technology

Moderate growth expected in 2016

The overall rather modest start to 2016 coupled with the high volume of orders from last year leads Klefenz to anticipate moderate single-digit growth for the current fiscal year. To drive growth, Bosch Packaging Technology plans to further expand its line and system competence and develop solutions for the connected production of the future.

Complete solutions from a single source

At Bosch Packaging Technology, a key topic for the future remains line and system competence. Here, Bosch not only views itself as a provider of the entire production line, from processing technology to the finished packaged product, including services. Instead, the company is taking the approach a step further and looking to turnkey projects, which it sees as offering great potential, especially outside Europe. In these projects, Bosch assumes responsibility for everything from planning of material and personnel, building technology, and cleanrooms to the production facilities themselves, thereby providing customers with complete solutions from a single source. Projects have already been successfully implemented with customers from the pharmaceutical industry in Latin America, the Middle East, and Russia.

Industry 4.0: applying the Bosch Group's know-how to target industries

Industry 4.0 is another driver of growth. The modern factory is smart and connected, linking traditional manufacturing with sensors, software, and services. Bosch Packaging Technology works with its customers on pilot projects aimed at developing needs-oriented solutions. In doing so, the company can draw on the Bosch Group's many years of experience. "Whenever it is a question of connectivity, we benefit from the Bosch Group's expertise as a leading user and leading provider in this area. We will be launching a whole range of pilot projects in 2016 in order to tailor Bosch's existing software solutions to the needs of our customers in our target industries pharmaceuticals and food," says Klefenz. One such solution already employed by customers all over the world is Bosch's Track & Trace software. For instance, to give one example: in 2015, Bosch Packaging Technology and Hikma Pharmaceuticals in Jordan and Saudi Arabia implemented Track & Trace projects for pharmaceuticals. Using Bosch technology, the company prints and verifies up to 400 cartons per minute, and is capable of printing serial numbers, 1D and 2D codes, batch data, and expiry dates on the cartons. Bosch's new software ensures that the software and machines within the process are reliably connected. The various packaging lines can then be monitored from a central office. Thanks to the solution, Hikma is also able to export the data to an external database, for instance that of a regulatory authority. In 2016, other customers in the U.S., the UK, and Austria will be equipping their production facilities with Track & Trace systems made by Bosch.



Kliklok-Woodman: Kliklok-Woodman focuses mainly on the development, manufacture, and marketing of secondary packaging machinery such as endload cartoners and top-load erectors and closers, and of primary packaging machinery such as vertical form, fill, and seal machines. Pictured is an endload carton closer.



Industry 4.0: Track & Trace: The CPS (Carton Printing System) forms the basis of all serialization solutions from Bosch. The printer can be flexibly adjusted, either to print the data matrix codes on top or on the side of the folded cartons. The new CPI Software from Bosch ensures reliable connection between software and machine level during the serialization process.



Osgood Industries Inc.: Osgood Industries Inc, Florida, develops, manufactures and distributes Fill- and seal equipment for pre-formed containers in the liquid food industry. Pictured is a fill- and seal machine for yogurt.



Bosch Packaging Technology
Stuttgarter Straße 130
D 71332 Waiblingen
Telefon: +49 711 81158502
Telefax: +49 711 81158509
E-Mail: christin.poenisch@bosch.com
Internet: <http://www.boschpackaging.com>

On Friday, April 22, 2016, RAUMEDIC inaugurated its new US headquarters in Mills River. The new high-tech development and production center is an important investment in RAUMEDIC's future.

Inauguration ceremony at the new US site



RAUMEDIC US-Headquarters

Following the demand of their customers for a local presence, RAUMEDIC has built a plant in Mills River, North Carolina, 4,600 Miles (7,300 km) away from the German headquarters. In doing so, the medical technology specialist ensures its ability to produce customized and efficient polymeric products for the North American market. During the first stage of expansion, customized tubing, molded parts and systems will be produced on 13,000 square feet of clean room space in accordance with ISO 14644 class 7. RAUMEDIC is investing over 20 million USD in its new US headquarters.

The approximately 60 employees with whom RAUMEDIC is starting up its new site were, according to company's chairman Martin Bayer, a key factor in the location decision. A majority of them have been working together for decades and have an extensive experience in the manufacturing of medical polymer products. They are the basis for RAUMEDIC's expansion in the United States. The number of employees is expected to exceed 100 within the next few years.

While greeting the many guests from the political and economic realms, Martin Bayer emphasized: "After only seven months of construction, with our new home for RAUMEDIC, Inc., we all have created an American company that is based on its own tradition and history. We will fuse and develop German and American know-how in polymer processing in this region."

Jobst Wagner, President of the REHAU Group, was also in attendance. "Here American pioneer spirit, German engineering and the Swiss solid way of doing business come together and form the perfect foundation for a rising company."

Representative Chuck McGrady of the North Carolina House of Representatives, Tommy Thompson, Chairman of the Henderson County Board of Commissioners and Adam Shealy, Chairman of the Henderson County Partnership for Economic Development welco-

med RAUMEDIC to North Carolina and wished the best for a bright future.

After the official ceremony, the guests were given a walking tour in order to see the site for themselves. They appeared to be impressed by the modernity and size of the building and were easily convinced that – as Bayer stated – a "plant for the customers" has been created here. A new building where employees put their heart and soul into developing and manufacturing products for medical engineering and pharmacy.

Raumedic AG
D 95233 Helmbrechts



Martin Bayer, RAUMEDIC CE; Martin Schenkel, RAUMEDIC COO and Jobst Wagner, President of the REHAU-group

MICROBIAL MONITORING IN ISOLATOR

Autor: ALESSANDRO LIGUGNANA



trio-bas-show-isolator-bluetooth-induction-rfid-web-1024x708

Until today the typical monitoring of the air is generally performed using active impact samplers with a single head. There are now instruments available with two or three aspirating heads. This new generation of sampler gives the possibility to collect 1000 litres of air for total bacterial count in less than 3 minutes this means more tests in less time and better investment of operator time. It is also possible to perform TBC and TYMC at the same time using two different culture media.

The TRIO.BAS microbial air samplers DUO and TRIO models from Italian company ORUM with more than 35 years of experience in air monitoring giving the microbiologist an effective help to improve performances and labour quality TRIO.BAS is the ideal solution for Clean Rooms RABSs and controlled environments.

Orum International S.r.l.
IT 20153 Milano

Apply now for the Cleanroom Award 2016

Cleanroom Award 2016

The ReinraumAkademie is inviting companies and research institutions from the cleanroom industry to participate in the Cleanroom Award of 2016. Five innovations will be presented at the CleanZone trade fair, which takes place in Frankfurt on the 8th and 9th of November 2016. The winner will be selected by the visiting public, in which 3,000 euros in prize money is up for grabs.

Innovation, sustainability, & efficiency.

Participating in the Cleanroom Award can give anyone whose idea might contribute to a higher technology level or efficiency gains in the cleanroom industry. The deadline is August 31, 2016.

How to apply for the Cleanroom award 2016!

What can be submitted?

We are looking for innovations that bring a technological edge, a gain in efficiency or companies that see their ideas competitive in the cleanroom sector. All ideas can be submitted as a sketch on paper or as a finished product.

Until when can you participate?

The closing date for the award is the 31st August 2016. Anyone can participate, not only businesses, but also scientific and sole institutions, both are equally accepted.

Where to send your application?

Applications for the Cleanroom Award 2016 can be sent to the Cleanroom Akademie.



Preisübergabe 2015: Die InfraSolution AG erhielt den Cleanroom Award 2015 für ihr neuartiges, automatisiertes Messsystem namens Robot Scan Flex.

reinraum-akademie
Ein reiner Raum entsteht im Kopf

ReinraumAkademie GmbH
Rosa-Luxemburg-Straße 12-14
D 04103 Leipzig
Telefon: +49 341 98989303
Telefax: +49 341 989893303
E-Mail: luisa.guenther@reinraum-akademie.de
Internet: <http://www.reinraum-akademie.de>



Material analysis – The world of plastics is amazingly diverse

There is no doubt that, in the entire spectrum of materials, plastics occupy a leading position. Due to their properties and functionalities, plastics have opened up unforeseen possible uses and innovation potential. In the industry, materials research and plastics development in particular are considered important interdisciplinary technologies and guarantees of economic success.

Plastics are invincible. Whether fiber reinforced, particle filled or foamed, they are highly resistant to mechanical loads. Equipped with additives and functionalities, not only are they stable and resistant to outside influences, they actually display improved material properties and special optical, electrical and thermal capabilities and can have energy-saving, sensor, actuator or even self-healing functions.

Today, the construction industry appreciates the fact that plastics are so multifunctional because of the wide range of applications, but especially when it comes to sustainable energy and resource efficiency. New types of fiber composites and lightweight building materials are also they key to reducing energy consumption and carbon dioxide emissions in automotive engineering. In the automobile industry in particular, plastics are used for a variety of applications, from vehicle equipment to specific identity technologies.

Plastic electronics

Developing plastics with special optical and electronic characteristics is in the midst of a boom. The use of chromogenic, phototropic polymers that can be controlled by stimuli such as light is opening up

new markets, as demonstrated by processing luminescent polymers into OLEDs, for example. When it comes to energy consumption and cutting costs, techniques used to manufacture solar cells and solar modules as well as intelligent sun-blocking glazing continue to increase in importance.

Nanomaterials

Nanomaterials are already being used in a variety of sectors, such as in electric switching modules, as luminescent materials and to functionalize and enhance material surfaces. In the medical and pharmaceutical sector, they are being used as a new type of active-substance carrier and making entirely new treatment methods possible. They are also used as functional additives in the food industry.

So-called quantum dots are a new type of nanoparticle with unique properties that can be influenced by adjusting the size of the particle and passivating the particle surface using various ligands. The special properties are used in a wide range of applications such as display technology, photovoltaics and banknote security as well as for medical treatment. At present, researchers are also developing environmentally compatible display techniques and ways to further improve efficiency.

Manufacturing nanoparticles for industrial use and their stabilization are associated with opportunities and risks. On the one hand, micro- and nanoparticles are opening up new prospects in various application technologies. But on the other, they pose major challenges

Material analysis—The world of plastics is amazingly diverse

to the analysis and health-protection sectors.

Biopolymers

Biopolymers are natural macromolecular synthesis products that are made of renewable raw materials. Biopolymers that are used in industry such as cellulose, starch, lignin, chitosan and vegetable and animal proteins are made from agricultural and forestry products using special processes. The objective is to replace the basic material of petroleum with renewable raw materials. To that end, researchers are trying new approaches to secure raw materials and reduce dangerous emissions.

Biopolymers are impressively diverse, so they can be used for a wide variety of product developments and have unlimited potential for optimizing various applications.

When developing bio-based products, aspects such as functionality, efficiency and safety are paramount. The use of biopolymers is now established in various branches of industry including food manufacturing, pharmaceutical products, medical technology, chemicals, plastics processing and vehicle manufacturing.

Research activities focus on the development of functional biopolymers and analyzing process conditions. In some cases, recent studies have indicated an improvement in product properties by combining them with bio-based and conventional synthetic plastics. The development of encapsulating biopolymers and their nanoparticles or functional additives could give rise to revolutionary application possibilities.

High-end and ultratrace analysis

New types of materials are the key to a sustainable future. Sensitive analysis techniques are a prerequisite for developing high-performance materials of this kind. The uses and potential applications of modern substances and functional materials are practical unlimited. Besides industrial applications, plastics are used in nearly all aspects of daily life—from consumable materials to packaging. The need for research and development is high, and as the range of new functional materials and substances increases, so do the demands being placed on analysis.

Innovative synthesis and analysis processes such as those on display at analytica are what determine the pace of research and testing of new materials.

Plastics analysis from the industry's perspective

According to Dr. Jürgen Blumm, Managing Director of Netzsch Gerätebau, the trend toward faster, more reliable and highly automated measuring techniques is an important one in plastics analysis. „It is also important for the entire analysis process, from sample taking and sample preparation to conducting and evaluating the experiments,“ explains Blumm. „We live in an age in which people work with smartphones and tablets on a daily basis. These tools are designed to be used without much training. Measuring technology should follow this trend in the future.“

For the first time ever, Netzsch is introducing its Eplexor-DMA series at analytica 2016. These dynamic mechanical analysis systems can be used to test force levels that cannot be tested using conventional laboratory equipment. New systems that couple thermal analysis and gas analysis will also be on display. „We are particularly proud of having directly coupled FT-IR and thermogravimetry in a system that was patented by Netzsch,“ explains Blumm, emphasizing, „Naturally, the new user interface in the software, which features a smart mode, is an absolute trend.“

Today's requirements for simple operation, even in classic devices for thermal analysis, were also implemented by Netzsch. „Researchers also want to perform complex measuring cycles. Our new smart-mode software does both, i.e. routine tests with a few mouse clicks combined with complete flexibility for more ambitious researchers,“ explains Blumm. The new DMAs also make completely new measuring capabilities possible. For example, Eplexor DMAs can perform measurements on sample sizes and cross sections that are used in real products. That reduces sample-preparation work, and the results are more realistic, particularly in the case of inhomogenous compositions.

When it comes to plastics analysis, software plays an increasingly important role in modern systems for thermal analysis because it is the key to user-oriented operation and to finding new applications in production and research,“ says Dr. Maria Zweig from Mettler Toledo. „STARe software is the result of constant development at Mettler Toledo, and it can be used to control all thermal analysis devices with a single software platform. Thanks to its functionality and intuitive operation, performing and evaluating measuring tasks of all kinds is easier than ever. Quality assurance options or incorporating it into a higher-level LIMS effortlessly integrates the software into existing systems and working procedures. This gives the user a holistic concept that allows him to concentrate entirely on his projects.“

With regard to new applications in the bioplastics sector, Zweig adds „Mettler Toledo and its revolutionary development, FlashDSC (fast scanning calorimetry) and its rapid heating and cooling rates have made a considerable contribution to our understanding of the structural characteristics and processing of alternative materials.“

Analysis outlook

Implementing new technologies in classical metrology and using them to increase measuring accuracy and expand application fields is an important objective. „Reducing the number of work steps in the entire analysis process also plays an important role for us,“ adds Blumm. „Which is why automation and 24/7 operation are a topic that we are focusing on more closely. In the case of the Eplexor DMA, we have already taken the next step. This DMA can be equipped with an automatic sample changer that can take measurements completely autonomously, even in the case of different measuring modes and sample geometries. Right now that is unique the world over!“

Material analysis at analytica 2016

The latest equipment configuration and coupling combinations as well as future-oriented trends in material research and material analysis will be presented at analytica 2016. They allow users to find the right solution for each material and to each problem. The industry's leading trade fair gives visitors a comprehensive overview of innovative techniques such as DSC, DMA, TGA, separation techniques that use interactive chromatography, GPC, high-temperature chromatography, field flow fractionation, spectrometry, microscopy and imaging techniques as well as corresponding software and automation solutions. Many methods can be used quickly, efficiently and cost effectively in routine laboratory applications and for quality assurance. Find out more about high-performance methods and future trends in material analysis at analytica, the largest gathering for this industry.

Messe München GmbH
D 81823 München

The modern laboratory is experiencing a paradigm change. As laboratory processes increase in complexity, automation solutions are becoming indispensable. In addition, the constant increase in statutory and regulatory requirements makes needs-oriented networking necessary. Smart laboratory equipment will be a driving force behind innovation in the smart laboratory of the future. From May 10–13, 2016, analytica in Munich allowed experts to make user-oriented presentations of integrated automation and digitalization solutions. Corresponding tools, software and networking solutions that satisfy the prerequisites for the „smart laboratory“ were presented in theory and in practice.

Laboratory 4.0 – The smart laboratory of the future



The modern laboratory is experiencing a paradigm change. As laboratory processes increase in complexity, automation solutions are becoming indispensable. In addition, the constant increase in statutory and regulatory requirements makes needs-oriented networking necessary. Smart laboratory equipment will be a driving force behind innovation in the smart laboratory of the future.

From May 10–13, 2016, analytica in Munich will allow experts to make user-oriented presentations of integrated automation and digitalization solutions. Corresponding tools, software and networking solutions that satisfy the prerequisites for the „smart laboratory“ will be presented in theory and in practice.

So far, future-oriented information technology solutions have opened up unimaginable opportunities and challenges in the laboratory. Optimized levels of automation and integrated device modules with dynamic application capabilities are making it possible to develop processes that are efficient and reproducible—i.e. that can be validated—and ensure holistic data management. The task now is to transform manual processes into automated ones and to integrate laboratory information management systems (LIMS) to make the laboratory a more efficient „think factory“. Intelligent laboratory systems, individual networking and integrating laboratories into company structures in a sustainable manner not only increase a company's flexibility, but significantly improve its profitability, as well.

Particularly in the case of growth-oriented industrial laboratories, it is important to improve efficiency, optimize structures and increase flexibility. Essential prerequisites and factors of success for reaching these objectives include state-of-the-art, high-resolution, communication-capable analysis systems, functional automation solutions to monitor reaction parameters and product quality and ensure rapid data availability and efficient data management.

Important future technologies have their place in the laboratory value chain. Against the backdrop of increasing digitalization, various processes and structures in the laboratory of the future must be rethought. Launching this new phase of development in the laboratory calls for complex holistic automation solutions. The number of network-capable laboratory devices with so-called smart functions will continue to grow at a rapid pace. Lab 4.0 is about to become a reality.

The laboratory of the future requires that laboratory systems be able to communicate with one another without restriction. The objective is to guarantee various flexible additional functions including monitored inspection processes through continuous data availability. Intelligent modules already control equipment systems, switch on laboratory devices automatically and regulate various processes in the laboratory. For example, a safety cabinet can now automatically monitor and regulate the overflow of collection containers or com-

Laboratory 4.0—The smart laboratory of the future

municate with other cabinet parts and devices. Cameras that are built into various laboratory technology tools intelligently control things in their surroundings. In the future, communication between laboratory devices will continue to increase in importance.

The smart laboratory stands for a new era in the laboratory. Existing equipment technologies must be made future proof, and high-availability data networks are urgently needed. The gigantic flow of data must be used sensibly. The quick and reliable transfer of huge quantities of data and IP-based networks make it necessary to handle that data efficiently.

Bridge between the life sciences and automation technology

The team of researchers who work with Andreas Traube, Head of the Department of Laboratory Automation and Biomanufacturing Engineering at Fraunhofer IPA, has developed new approaches for networking laboratory and analysis processes in the value chain that covers everything from sample logistics to documentation. They took their experiences with LEAN management and process optimization and incorporated them into the laboratory, the objective being to sustainably improve the efficiency of all processes and overall laboratory performance. By successfully implementing their objectives, the team of researchers did an exemplary job of bridging the gap between the life sciences and automation technology. „We are convinced that interaction between organizational and technological solutions can make life-science laboratories considerably more efficient. Fraunhofer IPA offers customer-specific solutions for the entire LEAN Lab workflow and provides support during implementation and with technical developments,” explains Traube.

„We live in an age of increasingly personalized products. As a result, laboratories that are used to research and test products in various branches of industry are becoming a key factor in the product development process,” predicts Traube. „Networking key laboratory elements such as laboratory processes, data analysis, equipment and operating personnel are key elements for an efficient smart laboratory,” explains Traube, looking forward to the future. „The technological foundation for this is already available. These technologies will have an enormous influence on and change laboratories in the years to come!”

Lab 4.0 from the industry's vantage point

Generally speaking, one can differentiate between two types of laboratories, i.e. the academic research laboratory and the industrial research and quality assurance laboratory. According to Dr. Frank Schleifenbaum, Marketing Director at Berthold Technologies, the first has little need for laboratory automation because applications are not standardized or repetitive enough. He feels that the preferred approach here would be to network laboratory equipment, which covers everything from a fully automated procurement system for chemicals and labware and the direct exchange of data between individual analysis devices (LIMS) to fully automated lab records. „This type of integration calls for corresponding interfaces in the hardware, electronics and software,” explains Schleifenbaum. „Ideally, all devices have access to the network and communicate via a standardized protocol such as SILA. However, in the research sector, the user must be able to intervene in the process at any time. Uniform footprints for the devices might also be a topic. For instance, standardized dimensions with defined graduated sizes are conceivable because they make it easier to adapt a laboratory to the procedure in question—e.g. through the use of adjustable lab benches.” He goes on to explain that the demands placed on routine and analysis laboratories in industry emphasize different aspects. Instead of flexibility, the

priority here is on reliability, throughput and avoiding errors. „In any event, sample handling must be automated and data documentation must be fully automatic. Individual devices exchange data and samples among one another, and manual intervention is not necessary. At the same time, standardized interfaces make it possible to combine centralizing and decentralizing laboratories. Complex data evaluation (big data) can be outsourced to high-performance computer clusters, and data can be stored centrally and correlated with one another,” continues Schleifenbaum. Despite all the standardization of laboratory processes, uniform interfaces make it possible to quickly convert the laboratory for other routine tasks.

Big data

Lab 4.0 makes it possible to collect and link large quantities of data. „That is why innovations must be triggered that can automate and quickly generate these large quantities of data (high-throughput screening and big data). However, the interfaces must be defined. To do that, binding specifications from a regulatory authority are needed. A loosely knit consortium of laboratory equipment suppliers will probably not suffice,” explains Schleifenbaum. „Data protection will be an important topic and a challenge that network technology must deal with. Communication between individual devices must be kept simple enough so that the user can create and adapt it on his own.” Which is why data evaluation must be capable of learning, i.e. of independently searching for relationships and detecting and depicting dependencies. Then it would not just reflect the user's manual actions, but expand on them. According to Schleifenbaum, on the one hand that would give the user a flexible laboratory environment that could be adapted to current requirements. At the same time, he would see an increase in the quality of the analysis results and be able to collect, organize and automatically evaluate larger quantities of data.

Sector-specific solutions at analytica in Munich

At analytica, which takes place in Munich from May 10–13, more than 1,100 exhibitors from around the world will present their latest products and methods—including those for the laboratory of the future. According to Dr. Gunther Wobser, Managing Partner at LAUDA, the challenges of Lab 4.0 lie in the fact that „devices must communicate with one another.” LAUDA sells thermostats and circulation chillers with various interfaces. „We make integrated laboratory-automation systems available free of charge and use remote maintenance to ensure permanent availability.” LAUDA is presenting a new product line at analytica. „The major device innovation that we are presenting at analytica is called PRO. For the first time ever, we have optimized thermostats for bath applications and circulation thermostats for external applications. The operating unit is completely independent of the thermostat and is flexible enough to be placed wherever it is needed,” explains Wobser.

Conclusion

Lab 4.0 is revolutionizing the laboratory community, from sample logistics to data management, and is allowing new approaches for personalized processes. In the future, next-generation technologies such as big data, cloud computing, the Internet of Things and the mobile Internet will place an essential role in securing future growth.

At parts2clean, Dürr Ecoclean presents solvent and water-based cleaning plus service solutions

Solutions as diverse as the tasks in industrial part cleaning

A broad-based portfolio addressing virtually any cleaning task is presented by Dürr Ecoclean at this year's parts2clean, leading international trade fair for parts and surface cleaning, in Stuttgart. The range of solutions shown extends from aqueous and solvent based cleaning through ultrafine cleaning to tailor-made after-sales concepts. Moreover, there will again be 'live' exhibits of different cleaning systems – including the new EcoCCompact – at the company's booth.



The demands on part cleanliness, and hence on the cleaning system employed, vary with the degree of completion, the downstream process and the specific industry. For such highly diverse cleaning tasks ranging from preliminary or coarse cleaning through intermediate cleaning to fine and ultrafine cleaning, Dürr Ecoclean will be presenting matching solutions at this year's parts2clean from 31 May – 2 June. Each of these technologies helps users make their part cleaning operations more reliable, cost-efficient and sustainable.

With its EcoCCompact, Dürr Ecoclean has optimized the successful predecessor model from the prior Compact 80C/P series. Operating under a full vacuum and equipped with two flood tanks as standard, this machine can clean and conserve parts with modified alcohols and non-halogenated hydrocarbons. Experiences and innovative technologies from other Dürr Ecoclean systems have likewise found their way into the efficient EcoCCompact. The unit thus provides enhanced flexibility for different cleaning tasks. Versatile options open up a broad range of uses, from rapid degreasing to exacting cleaning operations conforming to cleanliness specifications. In addition, this model is optimally adaptable to specific user requirements, e.g., from preliminary through intermediate to final cleaning. To assist with such challenges, a third flood tank can be retrofitted. The machine's design focus lies on a targeted reduction in per-unit costs combined with maximum cleaning efficiency. Moreover, the new EcoCCompact shines with its particularly space-saving modular design, easy operation, visual appeal and attractive price/performance ratio.

The extensive line-up of part cleaning systems relying on aqueous media will be represented by EcoCWave and EcoCCube models at the trade fair booth. The latter constitutes an ideal entry-level solution for users considering aqueous cleaning. This is due, on the one hand, to its small footprint of just 2100 x 1630 x 1855 mm (length x width x height) and low weight. The machine can thus be integrated easily and in minimum time into any manufacturing environment, apart from providing flexibility in use. On the other hand, it attains its operating temperature quickly and energy-efficiently due to the optimized dimensions of two standard flood tanks. The EcoCWave is built to clean even large quantities of parts at a rapid pace and with high reliability, in processes ranging from coarse to ultrafine cleaning. It owes

this capability in part to the use of powerful pumps and large diameter piping, which ensure quick filling and draining of the work chamber. The round, upright tanks are flow-optimized to prevent chips and foreign matter from accumulating inside. This design translates into a higher cleaning quality and longer cleaning fluid life.

In ultrafine cleaning tasks – e.g., in the optical industry, medical equipment manufacturing and other segments – the ultrasound cleaning systems marketed by UCM AG, a Dürr Ecoclean Group company, excel with a number of technical features which enable them to meet even exceptionally demanding cleaning standards repeatably and efficiently.

The equipment manufacturer's trade fair offering is rounded out by the „service island“. Here, experienced service staff advises customers on after-sales matters, tailor-made service concepts to boost plant availability, equipment revamps and adaptations designed to meet altered requirements.

Dürr Ecoclean GmbH
70794 Filderstadt

As in 2015, Systec & Solutions will again be taking part in the PAS-X User Group Meeting in Morristown, New Jersey / USA as cooperation partner and exhibitor.

PAS-X UGM comes round again in the USA



Bildrechte: Systec & Solutions GmbH

The MES user conference will be taking place on 12 and 13 May 2016. At the invitation of Werum IT Solutions America, around 100 experts from industries subject to FDA regulation will be meeting to exchange ideas at the international event.

Since early 2015 Systec & Solutions have been working together with Werum to develop perfectly matched MES/HMI concepts. Customers benefit from enhanced user-friendliness and the fact that there is now no need for extensive compatibility testing.

Visitors to the PAS-X User Group Meeting will have the opportunity to try out the combination of hardware and software on demonstration devices. The latest HMI systems – configured with PAS-X – will be available for use.



Systec & Solutions GmbH

Emmy-Noether-Straße 17 D 76131 Karlsruhe

Telefon: +49 721 6634 400 Telefax: +49 721 6634 444

E-Mail: talk@systec-solutions.com Internet: <http://www.systec-solutions.com>

New Irish Sales Specialist will be attending Irish Pharmig Conference

Cherwell increases commitment to pharmaceutical microbiology in Republic of Ireland

Cherwell Laboratories, specialists in cleanroom microbiology solutions for the pharmaceutical and related industries, are continuing their drive to improve support for pharmaceutical microbiology in the Republic of Ireland. As part of this initiative, Cherwell are pleased to announce the appointment of Ritchie Mooney in the role of Sales Specialist, based in the Republic of Ireland. To further establish their commitment to the Irish market, Cherwell will also be supporting and attending the Pharmig conference on the 18th May in Cork, Ireland.

Prior to joining Cherwell Laboratories, Ritchie has worked for both manufacturers and distributors in the Life Science and associated industries for almost 20 years. During his time with Veltek Associates in particular, Ritchie acquired a good knowledge of Environmental Monitoring sampling and equipment, along with fogging systems and sterile disposable products for cleaning and disinfection purposes. Commenting on his new position at Cherwell, Ritchie said, "I am excited to be joining Cherwell and I am really looking forward to helping customers in Ireland with our Redipor Prepared Media in relation to various applications, such as environmental monitoring, product sterility testing, operator validation and process validation, amongst others."

Andrew Barrow, Sales Manager of Cherwell, commented "With Cherwell now shipping Redipor product directly to customers in the

Republic of Ireland, we welcome Ritchie to the team. His previous experience within the industry; good understanding and appreciation of GMP and sterile production; along with his knowledge of the latest industry guidelines; means that Ritchie is able to fully understand and help us satisfy customer needs."

Ritchie Mooney and Andrew Barrow will both be representing Cherwell at the Pharmig conference held on the 18th May at Fota Island Hotel, Cork. They will be on hand to offer practical advice on Cherwell's products and their applications within environmental monitoring, sterility testing of products, and process validation. The event will highlight Current Hot Topics in Pharmaceutical Microbiology. Topics covered include: data integrity and new expectations; EM incubation strategies; contamination control and regulatory requirements. Also, at the same venue, Pharmig is hosting a second event on 19th May Focusing on Control of Pharmaceutical Water Systems Topics will include: Annex 1 and ISO 14644 updates; data integrity and disinfectant efficacy testing. The full itinerary can be found on the Pharmig website.

Cherwell Laboratories Ltd

OX26 4XB BICESTER

Vereinigtes Königreich Großbritannien und Nordirland

Clean solutions for the consistent and effective cleaning of parts and surfaces



- parts2clean presents a wealth of innovations and technical refinements
- Know-how for process optimization



When products need to be cleaned prior to further processing or to ensure their proper functioning, consistent quality standards and low cost are key requirements. Many factors play a role here, including the right choice of cleaning agents, plant and process engineering, media preparation and cleaning tanks, the discharge environment, corrosion protection and packaging. “Whether it’s pre-cleaning, intermediate cleaning, final cleaning or the cleaning of functional surfaces – every cleaning task poses its own challenges. This year’s parts2clean offers an unrivalled range of exhibits for the consistent and effective cleaning of parts and surfaces – there is nothing like it anywhere else,” says Olaf Daebler, Director of parts2clean at Deutsche Messe.

Some six weeks before the show opens, more than 200 exhibitors have already confirmed their participation at the 14th International Trade Fair for Industrial Parts and Surface Cleaning, which runs from 31 May to 2 June 2016 at the Stuttgart exhibition center. This means that bookings for parts2clean compare favorably with those of the previous event.

Innovative solutions in every section of the show

Exhibiting firms are presenting products and services for every link in the industrial parts and surface cleaning chain. “Here at parts2clean, many exhibitors are unveiling innovations and next-generation solutions to an international audience for the very first time”, reports Daebler. One such solution is a new, modular cleaning plant that can handle a whole series of processes: pre-cleaning by immersion or ultrasound, robot-controlled contour-sensitive rinsing, deburring of components, rinsing of components with dry steam, and photo-optical parts inspection with secondary CO₂ cleaning. For solvent-based cleaning with non-halogenated hydrocarbons and modified alcohols, visitors can see a new and particularly compact plant incorporating innovative technologies. Also making its debut at the show is an innovation which now makes it possible to use multi-frequency ultrasound for chamber cleaning systems under vacuum. Vacuum-tight submersible transducers with switchable ultrasound frequencies of 25 and 50 kHz increase the flexibility of these systems

and extend the range of possible applications. New developments in immersion tank monitoring and maintenance are also on show, including a mobile measuring system for monitoring media and analyzing liquids. Among the innovations on show for detecting surface film contaminants is an automated system employing an inline fluorescence sensor that can be positioned quickly and precisely with the aid of a triaxial motorized unit. Another interesting innovation is a new digital Raman laser microscope specially developed for the manual identification of organic and mineral residual dirt particles and liquids. Visitors to the show can also expect to see a variety of new developments and technical refinements in cleaning baths, media, corrosion protection and packaging, and components.

Bilingual Industry Forum plus Guided Tours

“One of the highlights of this year’s parts2clean is the bilingual Industry Forum (German/English), which offers a wealth of know-how for optimizing processes in various areas of industrial parts and surface cleaning”, says Daebler. For the first time the Forum includes a special “Innovations Forum for Parts Cleaning”, where exhibitors will present new developments for various stages of the industrial parts cleaning process in the form of short talks. Admission to the Industry Forum is free of charge for all visitors to parts2clean, and the complete program can be found online at www.parts2clean.de/de/veranstaltungen/programm/fachforum/. In addition, the program of Guided Tours is ideal for visitors interested in finding exhibitors offering solutions for very specific cleaning challenges or standards.

Taking place in parallel with parts2clean from 31 May to 2 June 2016 at the Stuttgart exhibition center are O&S (the International Trade Fair for Surface Treatments and Coatings), LASYS (the International Trade Fair for Laser Materials Processing) and AUTOMOTIVE Expo (an amalgamation of five trade shows covering various aspects of the automotive industry).

Deutsche Messe AG
D 30521 Hannover

Modular CO₂ transmitter EE870 with interchangeable probe EE871. (Photo: E+E Elektronik GmbH)



Extended Measuring Range

Modular CO₂ Transmitter Now Measures CO₂ Concentration up to 50,000 ppm



The modular CO₂ transmitter EE870 from E+E Elektronik now measures CO₂ concentration up to 5 % CO₂ (50,000 ppm). The extended measuring range makes the EE870, consisting of CO₂ probe, conversion board and connection cable, even more versatile. The interchangeable CO₂ probe EE871 with auto-calibration uses an infrared measuring principle (dual wavelength NDIR operation principle) that is particularly insensitive to pollution. Aging effects are compensated automatically, resulting in excellent long-term stability. Thus the CO₂ transmitter is ideal for demanding applications.

The multi-point CO₂ and temperature adjustment ensures high accuracy over the entire temperature working range of -40...60 °C (-40...140 °F). Additionally, the IP65 probe enclosure with interchangeable PTFE filter offers excellent protection against pollution. Therefore, the CO₂ probe can be used in harsh environments such as in agriculture (stables, hatcheries, incubators).

The compact design, the M12 connector

and the optional mounting flange allow for fast installation or replacement of the CO₂ probe. An optional radiation shield is available for outdoor applications.

The measured data range of up to 5 % CO₂ (50,000 ppm) is available on the analog current or voltage output and on the Modbus RTU interface of the conversion board. An optional kit facilitates easy configuration and adjustment of the EE871 probe.



E+E Elektronik GmbH
Langwiesen 7 A 4209 Engerwitzdorf
Telefon: +43 7235 605 0 Telefax: +43 7235 6058
E-Mail: info@epluse.at
www.epluse.com

Impressum:

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

Original texts and images

The contributions mentioned by name are the responsibility of the particular author. Reprinting, also of extracts, are permitted only with the approval of the editor and with reference to the source. The publisher does not accept any responsibility for unsolicited manuscripts and illustrations. The publisher is granted the exclusive, spatial, temporal and contentual limited right to freely use the article in unchanged or edited form for all purposes as often as desired or to transfer it to third parties for use. This right of use relates to print and electric media (Internet, databases, data carriers of all kinds).