



Hans J. Michael GmbH



The largest room in the CleanMediCell® clean room facility, at 180 square metres, provides plenty of space for the assembly line for manufacturing catheters and stents.

## Production of minimally invasive implant technology in a clean room area of 630 square metres

# Medical technology manufacturer eucatech AG putting new plant in Weil am Rhein in production

South Baden company eucatech AG develops and produces minimally invasive medical products for the treatment of vascular disease. Their highly sensitive products, such as heart catheters and stents, are used in cardiac and vascular surgery and are manufactured under the strictest of hygienic standards in clean room conditions. This high-tech company has developed a variety of product variants and coatings in the area of implant technology, placing it in a unique position worldwide, and they have experienced continuous growth over the past few years.

The expanding company had to move at the end of 2015 because the expansion possibilities of its previous headquarters in Rheinfelden were exhausted. In Weil am Rhein, also located in the Germany/Switzerland/France triangle, eucatech AG could purchase a building that can provide for both the expanded space requirements of their current staff of 70, while still offering space for planned expansion in future.

The move to the new facilities represented a significant new investment as well. The clean room production area was greatly expanded and the systems required were rebuilt. As a result, company management saw the move as an opportunity to rearrange the production concepts that had grown up over the years, and implement them optimally in a new clean room facility. Since clean room production is the heart of this

high-tech company, they also intended to invest in the latest and most reliable technology.

„Our products demand constant quality and are manufactured under the strictest hygienic conditions. Production under clean room conditions is absolutely essential for our innovative, flexible solutions, which are often in the millimetre and nanometre range. While we were moving, we therefore implemented the highest standards when investing in the new clean room technology. „To set up the new production line, we had already worked with clean room specialists with the latest technology on the market to select the location,“ explains technical managing director Dr.-Ing. Michael Giese.

SCHILLING ENGINEERING GMBH was entrusted with the development and installation of the system. The engineers of the clean room specialist, also based in South Baden, were involved right from the initial planning phases. This close collaboration permitted the development of an extremely functional concept that supported an optimum process flow. By the time the staff moved, the clean rooms were already installed and qualified, avoiding longer production downtime.

The new CleanMediCell® clean room facility meets the requirements of ISO clean room class 8 and was designed to cover a total of 630 square metres. The

## Medical technology manufacturer eucatech AG putting new plant in Weil am Rhein in production

layout of the clean rooms is based on the requirements of the different production areas. In addition to personnel locks with separate dressing rooms for men and women, separate production rooms were also built for different manufacturing processes such as laser cutting, stent heat treatment, extrusion and balloon formation. The heart of the facility is the new assembly line for catheter and stent system manufacture, which provides 180 square metres of space for the high-tech production machines.

The final area of the clean room is used to subject medical products to a final inspection and package them in sterile bags before safely locking them out through a material lock for sterilisation.

The CleanMediCell® clean room system used is based on a modular design. Wall and ceiling panels are connected using an innovative GMP-tight clip system that provides a high level of tightness without the use of silicone. That means that the clean rooms can be reconfigured flexibly in case of future expansion. The wall modules, with large windows, are designed as circulation walls. The innovative air circulation mechanism, which introduces existing filtered, air-conditioned clean air back into the clean room, can provide the same air exchange rate as comparable clean room system with significantly lower energy requirements. Laminar flow units flush with the ceiling and equipped with ULPA high-performance filters ensure reliable clean areas.

The entire clean room system was equipped with the latest in energy-optimized air conditioning systems, and its temperature and humidity are kept at predefined levels with close tolerances. All the room values can be set and controlled centrally from the integrated CRControl® control unit. This easy-to-operate controller permits the selection of all individual clean rooms from a touch screen, also showing possible faults such as a door that has been open too long or upcoming filter service dates with clear warning messages.

Production manager Sascha Senger, who was responsible for setting up the new clean room production in the Weiler building, is visibly satisfied with the new manufacturing process:

„Only under clean room conditions can be guarantee the quality and hygiene of our products without exception. An error-free, reliable system is absolutely crucial for us. The system from SCHILLING ENGINEERING has the latest in technology and a modular design. That gave us flexible options in planning the clear, functional arrangement



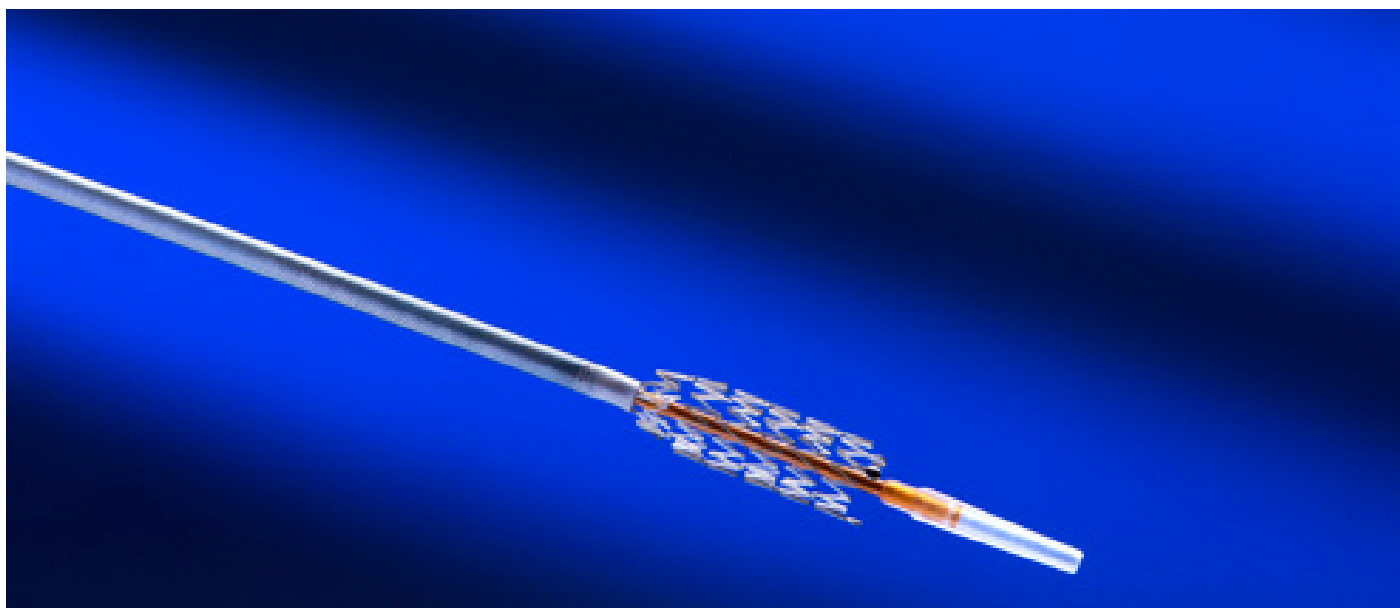
Another ISO class 8 clean room with laser cutting systems for the precision machining of stainless steel pipes for manufacturing stents.

of our production area. Building the system worked perfectly, and when we moved our equipment, the clean rooms were already qualified and ready to operate. We could get started right away.“

The investment in high-quality, safe, energy-saving clean room technology secures the position of eucatech AG on the intensively competitive world market. This innovative company can count on further growth.



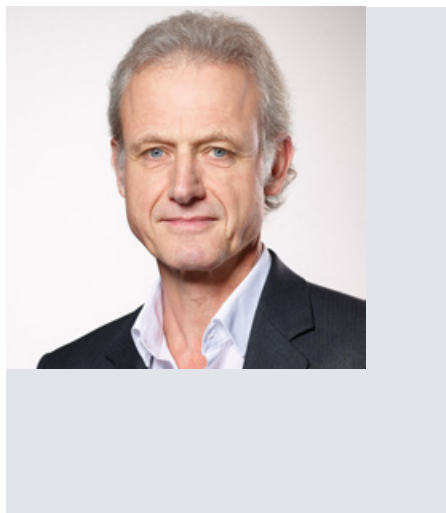
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The stents produced by eucatech are provided with a special coating that suppresses the defence reactions of the body. They are extremely thin and light as a feather, and simultaneously have to be very flexible and withstand enormous pressure. These high-tech products, produced exclusively in clean rooms, are introduced into sick arteries in a minimally invasive manner using a catheter.

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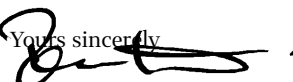
[www.new-lounges.de](http://www.new-lounges.de)



Dear readers, dear subscribers,

now it's the end of March 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



Vaisala humidity and pressure sensors are again heading for the planet Mars, incorporated in the instrumentation built by the Finnish Meteorological Institute. The ExoMars spacecraft is launched on 14th of March, 2016. The program is realized by the European Space Agency in cooperation with the Russian Federal Space Agency, Roscosmos.

# Vaisala and Finnish Meteorological Institute Head for Mars with the ExoMars Mission

The ExoMars spacecraft launch window opens on 14th of March at 09:32 UTC, and closes on 25th of March, depending on the weather conditions at the launch site at Kazakhstan. The spacecraft consists of two modules: the Trace Gas Orbiter to stay in orbit around Mars for a longer time, and the landing module called Schiaparelli to investigate the Martian soil. With world-class measurement technology onboard, the ExoMars will investigate the Martian environment and test new technologies paving the way for a future Mars sample return mission. The spacecraft is estimated to reach its destination in October 2016, following some seven months of travel.

## Researching the Pressure and Humidity of the Martian Atmosphere

Vaisala has provided the ExoMars 2016 mission with standard Vaisala HUMICAP® humidity sensors, and two different, specially customized Vaisala BAROCAP® pressure sensors. The pressure sensors were verified at Vaisala to enable the measurement of extremely low pressures on Mars.

The humidity sensor and the smaller pressure sensor are used in Vaisala radiosondes in meteorological measurements, while the larger pressure sensor is used in process measurements.

„The Finnish Meteorological Institute has been using Vaisala sensors for space research thanks to their stability,“ says Vaisala principal scientist Tomi Salo: „Our sensors are very stable. Users can trust that the changes indicated by our sensors, are the real changes in the measured environmental conditions.“

The Finnish Meteorological Institute (FMI) incorporated Vaisala sensors in their space instruments, which they developed specifically for the ExoMars Mission. The FMI instruments are a part of the small environmental observation station DREAMS onboard Schiaparelli, with the purpose of measuring local environmental conditions at the landing site.

„The Finnish Meteorological Institute is well respected for its high quality space instrumentation, and we are proud to support our long time customer and partner with reliable Vaisala sensors on this research mission to Mars. The fact that Vaisala sensors reliably work in harsh Martian conditions, is a testament to our continuous investments in innovation and quality,“ says Vaisala CEO Kjell Forsén.

The ExoMars aims to explore methane and other Martian atmospheric trace gases and their sources and sinks. Those could be signatures of active biological or geological processes. The investigations include also the first measurements of electric fields on the surface of Mars, and the search for evidence of the past and present life on Mars, as well as investigating the daily variations of the water and the geochemical environment.

## Vaisala Sensors Celebrate 30 Years of Space Research

Vaisala and the FMI have worked together for some 30 years on the field of space exploration. For example, FMI measurement devices have utilized Vaisala sensor components on the highly successful expeditions to Saturn's moon Titan in 2005 (ESA /Cassini/Huygens), Mars in 2008 (NASA/Phoenix), and Mars again in 2012 onboard NASA's Mars Science Laboratory (MSL) known as the Curiosity Rover. In addition, Vaisala sensors can also be found onboard the International Space Station, in support of life science research in space.

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RAUMEDIC, the development partner and system supplier for the medical and pharmaceutical industry, is restructuring its business units. Thus, the supplier of polymeric-based components and systems with modern full-service is creating an important basis in order to meet customers' requirements of tomorrow.

# RAUMEDIC AG

## Restructuring of the Business Units



Werk Münchenberg



Ralf Ziembinski

Over the last two years RAUMEDIC AG has invested a lot in the expansion and development of its locations in Europe and North America. The extension of the company headquarters in Helmbrechts, North Bavaria, an investment of 26 million Euro, was built including areas for the administration, laboratories and logistics as well as an area of 24,200 square feet (2,250 square meters) for class 7 clean room production.

In January of this year, Mills River in North Carolina launched operations at RAUMEDIC's first American production facility. The costs for this investment are estimated at 27 million USD.

A polymer processor specializing in medical engineering and pharmaceuticals is expected to produce efficient and flexible structures. Especially when it comes to realizing customized products by means of extrusion, injection molding, and assembly, a quick response to the customer's requirements is crucial. For this reason, RAUMEDIC is establishing a new organization and structure. Less is more, now. The originally three business units will become two. Operations concerning extruded tubing will continue to be coordinated within the TUBING business unit, managed by Dr. Ralf Ziembinski. Injection molding components and their subsequent processing into modules and systems will be housed within the SYSTEMS business unit with immediate effect. Thomas Knechtel, who has been responsible for the assembly unit and the development of catheters previously, will now manage the new business unit SYSTEMS as a whole. This will help RAUMEDIC to ensure that all expertise concerning the development and production of complex system products is centralized in one strong unit. The synergy effects resulting thereof will not only increase the efficiency when processing the request of customers. They will also guarantee that each customer is served instantly and directly. Next to the regional sales representative, a contact person will be available at RAUMEDIC's development center.

"This new structure guarantees that the technology, quality and service that we as a polymer specialist for the medical engineering and pharmaceutical industry offer, will also in future be highly qualified and quickly available for our customers and their product ideas," remarked Martin Bayer, sole Managing Director of RAUMEDIC AG.

These technologies include, among others things, micro and multi-component injection molding, insertion molding, fully automated assembly facilities, extrusion of tubing (also in the micro-range), and film blowing.



Thomas Knechtel

The raw materials employed in the production of these technologies include nearly all thermoplastics as well as silicone.

With this step, RAUMEDIC AG is strengthening its market position as a full-service supplier for the realization of polymeric ideas – manufactured on 108,000 square feet (10,000 square meters) of clean room production area.

Raumedic AG  
D 95233 Helmbrechts

Talks by experts on various aspects of industrial parts cleaning (with German<-->English interpreting)

# parts2clean Industry Forum – How to optimize processes and cut costs



31st - 02nd June 2016: parts2clean, Stuttgart (D)



In virtually every branch of industry, the cleanliness of parts has become a key quality criterion – and a competitive factor of decisive importance. As such, cleaning can be seen as a direct contributor to the business value of the products on offer. In order to achieve the requisite degree of surface cleanliness with lasting results and at minimal cost, it is necessary to know about the available technologies – what they can do and what they can't do, and how best to use them. "The comprehensive range of exhibits at parts2clean enables users to get in-depth information about cleaning solutions for a wide range of applications, to make direct comparisons between offerings from different exhibitors, and thus to make informed buying decisions for the future", said Olaf Daebler, Director of parts2clean at Deutsche Messe. The 14th Leading International Trade Fair for Industrial Parts and Surface Cleaning runs from 31 May to 2 June 2016 at the exhibition center in Stuttgart (Germany).

## Industrial cleaning know-how creates added business value

But it's not just the exhibitors' displays that make the show so attractive and worthwhile for visitors: The Industry Forum, internationally renowned as a knowledge resource, is also a major attraction, offering lectures and presentations with German <--> English simultaneous translation. "This year we not only have a program of 25 presentations under five topic clusters, but also the first-ever Innovations Forum. Organized by the German industry association for industrial parts cleaning, this is a showcase for demonstrating the latest advances in parts cleaning", announced Daebler.

The first themed session is entitled "Cleaning processes and methods". It includes contributions on the basics of designing processes and choosing plant for water-based cleaning, highlights the possibilities and limitations of washing solutions, both new and established, and offers advice on recognizing problems in cleaning, and how to avoid them. Also featured will be solutions for the cleaning of medical equipment, and for dry degreasing using natural mineral substances. The topics covered in the session "Upstream and downstream processes" focus on various concepts for vacuum drying, temporary corrosion protection, biofilms in cleaning plant, the recirculation of process water and cleanroom packaging to protect against contamination.

On the second day of the show, the program gets off to a start with the special session "Innovations Forum on parts cleaning". The latest innovations from exhibitors for different stages of the industrial parts cleaning process are presented here in the form of short talks. The main emphasis will be on innovative solutions for the chemical and process industries, plant engineering and accessories, measuring, testing and control, as well as technical support

and servicing. The afternoon session at the Industry Forum is all about "deburring and stripping". The talks deal with topics such as "When coatings become contaminants", laser de-coating as surface preparation for heavy-duty corrosion protection, surface treatment with light, deburring with ultrasound as an alternative to conventional processes, and cleaning/degreasing/deburring and high-gloss polishing, all carried out in one operation with the aid of plasma-polishing technology.

The third day's agenda begins with the session "Analytical processes and methods", and offers talks on surface analysis solutions for quality control in medical technology, and an innovative optical system for particle detection in industrial cleanliness analysis. A case study documents a system for rapid particle analysis integrated into the production process. The speakers at this session will show how advanced analysis can provide more information about the origin and harmful potential of particles, how the cleanliness of tiny areas for spot-bonding can be checked by contact angle measurement, and how imaging inline inspection techniques can be used to examine the surfaces of engineering components. The final session is called "Industrial cleanliness", and begins with a talk on industry alliance AdhSa that focuses on chemical and filmic contaminants in the automotive industry. The subjects of the other talks are parts cleaning for industry newcomers; a process for monitoring the effectiveness of cleanliness analyses; and a technique for measuring surface cleanliness in just one second.

The complete program for the Industry Forum, which is coordinated by the Fraunhofer Cleaning Technology Alliance, can be found online at <http://www.parts2clean.de/en/events/program/expert-forum/>.

Taking place in Stuttgart right alongside parts2clean, from 31 May to 2 June 2016, 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



“A brilliant medical device idea, but is it technically feasible and scalable?” Phillips-Medisize regularly addresses these questions when developers and customers discuss their first medical device design with the renowned outsourcing partner. The dialogue leads from R&D through to the ready-for-use device, in sterile packaging, which has passed all validations, clinical tests etc. Feasibility presupposes HCD (human centered design), DFM (design for manufacturing) and DFA (design for assembly) based on engineered-in scalability. Positive results ensure that production performance – derived from the feasibility condition of the first 3D-printed build or pilot batch – can be raised proportionally and/or linearly in a defined scale. During MEDTEC EUROPE, customers and prospects can discuss such a supply chain collaboration with Phillips-Medisize, with hands on numerous exhibits.

## Keep an Eye on HCD, DFM, DFA and Flexible Scalability



**12th. - 14th April 2016:  
Medtec Europe, Stuttgart (D)**

Ready for a medical device project! At the beginning of the project – according to Phillips-Medisize – the customer and their outsourcing partner should consider whether commercial production volumes will achieve target cost when considering DFM and DFA analyses. The feasibility study leads the R&D experts from the first reproduced pilot components to the preproduction series and finally to the scalability into millions of units of this medical device. Principal assumptions: HCD standards, fulfilment of validation, certification, clinical tests and conscientious quality surveillance mechanisms must be met. Not to forget: 80% of a product’s cost is determined during the first 20% of its development timeline. Scalability means that the production scale can be raised and/or varied from a basic low volume to the desired volume or magnitude. In the case of a specialised, niche drug-delivery device, for example, this may mean progressing from low-volume 3D-printed components assembled by skilled technicians to a ‘manumation’ (combination of manual assembly and automation) assembly process conducted by a trained operator. For commonly used drug delivery devices, this typically means developing processes to support engineering builds, then clinical supply, and finally a fully automated or high-speed automation process, supported by developmental single-cavity tooling and incrementally higher multi-cavity tools. Scalability must encompass this extent of flexibility.

Numerous exhibits provide opportunities to discuss the route of scalability: on stand 3B29, Phillips-Medisize presents a complete showcase of customised medical and diagnostic devices such as disposables, insulin pens, glucose meters, inhalers, single-use surgical devices and consumable diagnostic components, tube sets, catheters, diagnostic arrays, and much more.

From the initial idea to the ready-for-use medical device/product in sterile packaging: Phillips-Medisize provides a complete supply chain for customers. Last, but not least: quality control and quality assurance are essential factors with products in medical device technology. At Phillips-Medisize, production is monitored under a cross-process method by means of high-priority quality assurance standards in accordance with ISO 13485 and/or the corresponding FDA standards and Good Manufacturing Practice, GMP. Phillips-Medisize tests and checks all products at its in-house facility with appropriate measuring technology and also carries out cytotoxicity tests, bio burden determination, LAL and performs risk analysis by means of FMEA. Validation of the processes follows industry standard DQ-, IQ-, OQ- and PQ stages.

Phillips-Medisize Corporation  
CH 8309 Nürensdorf

## ENGEL medical conference in Tehran was a great success

# Reliable quality with low unit costs



More than 50 plastics processors gathered in Tehran in mid-February to learn about innovative manufacturing concepts, process technologies and strategies for reliable and at the same time economical cleanroom fabrication of medical technologies products. Together with its sales partner in Iran, Varzidehkar Co., and other suppliers, ENGEL AUSTRIA hosted the conference at the Azadi-Parsian Hotel.



The medical conference marks the beginning of a whole series of specialist events being held by ENGEL together with its partners in Iran. The great interest that Iranian injection moulding processors have for European technology was reflected in the high number of participants, the quality of their contributions to the discussions and some very concrete project inquiries. (Image: Varzidehkar)

„We are very satisfied with the event,“ emphasises Christian Reisinger, Sales Director Middle East/Central Asia at ENGEL AUSTRIA. „Many local processors took advantage of the opportunity to gather information and establish contacts, and they also brought some very concrete project ideas with them. The need to catch up is very tangible in Iran. The medical technologies manufacturers are expanding their capacities and new businesses are being founded.“ Beyond that, the rapid population growth and fundamentally good basic medical care system are also contributing to the dynamic development in this industry. „The market has a strong focus on quality, and therefore the interest in European technology is also quite high,“ says Reisinger.

### Extensive industry expertise thanks to dedicated Business Unit

In Iran, ENGEL is seen as a technology leader and a preferred partner for long-term business relations. This good reputation results not only from the high quality of its products, but also from its strong local presence with numerous service technicians and the close cooperation between the local sales team and the Business Unit at the company headquarters in Austria. There a whole Business Unit is

## Reliable quality with low unit costs



dedicated solely to the users in medical technology. „We deliver many injection moulding machines in a cleanroom design including automation and laminar flow technology. If desired, we also execute the entire GMP documentation for our customers,“ explains Gerhard Geierlehner, sales engineer at the ENGEL Medical Business Unit, while at the conference in Tehran. „That requires profound knowledge of the processes and industry, which is guaranteed due to our Business Unit structure.“ On the basis of its own cleanroom and a series of resulting machine concepts for cleanroom use, ENGEL has acquired many years of experience and extensive competence in the cleanroom sector. Besides injection moulding machines and robots, ENGEL also develops and produces its own GMP-conform peripheral equipment such as conveyor belts and distribution systems. „Good equipment is the foundation for stable processes, high-quality products and thus also outstanding competitiveness for our customers,“ says Geierlehner.

### Cleanroom solutions for maximum performance

A demonstration of what this could look like in practice was presented by Christian Reisinger and Gerhard Geierlehner in Tehran using sample components and videos from several concrete applications.

- To achieve the shortest possible cycle times and low investment costs while ensuring the best possible safety levels, ENGEL relies on tie-bar-less injection moulding machines for the mass production of consumables. Thus an ENGEL victory 300 tech injection moulding machine is used for the production of petri dishes, each consisting of a top and bottom part. The 4+4-cavity mould is very large in relation to the required clamping force, yet can still be installed on a 3000 kN injection moulding machine thanks to the barrier-free mould area. Because there are no tie bars in the way, the mould mounting platens on ENGEL victory machines can be fully used up to their very edges. Thus in many applications, a smaller injection moulding machine can be used than the mould size would normally dictate. This substantially reduces investment expenses and operating costs, as well as the footprint of the production cell. There are also benefits in terms of automation. The handling equipment can access the cavities directly from the side without having to circumvent any obstacles, which helps to reduce cycle times.
- In response to the trend towards larger moulds and higher output, ENGEL has consistently developed its all-electric ENGEL e-motion

injection moulding machines for high-performance cleanroom applications all the way up to the high clamping force range. Needle holders for insulin pens are for example produced with a highly automated manufacturing cell based on an ENGEL e-motion 440/160 T WP injection moulding machine with a 96-cavity mould. The application is hard to beat when it comes to process reliability. Despite the very delicate mould cores with a diameter of only 0.3 mm, extremely short cycle times well below 4 seconds are achieved. The electric injection unit is equipped with a direct drive. Highly dynamic injection movements and injection speeds of up to 500 mm/s are thereby attained. But if a problem with a manufactured part does arise, this is registered by the camera-based monitoring system. Thanks to cavity-specific handling, reject parts are automatically separated and the injection mould can carry on producing without deactivating the cavity.

- The production of drip chambers with an integrated filter for blood transfusions demonstrates the great efficiency potential achievable through process integration. The chambers – each consisting of a hard and a soft component – are injection moulded in a single work step on a tie-bar-less ENGEL e victory 160 combi injection moulding machine with an integrated ENGEL easix six-axis robot; the filter is mounted and joined by means of overmoulding with polypropylene. Four fit-for-purpose drip chambers leave the production cell every twelve seconds. This represents a significant increase in efficiency, because conventionally, the top and bottom parts were individually injection moulded and the inlay was then fitted and bonded in subsequent process steps. One key prerequisite in realising the one-shot process is servoelectric drive technology for all movements of the index plate mould; this facilitates the synchronous control of otherwise independent movements.

### Further specialist conferences planned with a focus on packaging and automotive

The medical conference marks the beginning of series of events ENGEL AUSTRIA will be holding in Iran focussing on specialised applications. A specialist conference will take place every six months for one of the individual target industries. The next topics will be packaging and automotive.

ENGEL AUSTRIA GmbH  
A 4311 Schwertberg



Arburg will be presenting the complete range of plastic parts production - from one-off parts through to high-volume production - at the Chinaplas 2016, to be held from 25 to 28 April 2016 in Shanghai. At Stand E1G01 in Hall E1, a Freeformer will demonstrate the efficient additive manufacture of design samples and prototypes based on the example of a „pill splitter“. The same product will be manufactured in high volumes on an electric injection moulding machine. A high-speed IML thin-walled application will also be on show: a „Packaging“ version of a hybrid Allrounder will produce four IML containers in a cycle time of around 3.2 seconds.

## Chinaplas 2016: Arburg to exhibit complete plastic parts production range



Arburg offers „Packaging“ versions of its Allrounder injection moulding machines for the production of IML boxes and other thin-walled applications in the packaging industry. (Photo: Arburg)

- Injection moulding: Electric Allrounder produces pill splitters in high volumes
- Additive manufacturing: Freeformer for prototyping a medical technology article
- IML application: High-speed „Packaging“ version of the hybrid Allrounder

**25th - 28th April 2016:  
Chinaplas, Shanghai (China)**



From additive manufacturing with the Freeformer to injection moulding with Allrounders: Arburg will present its entire product range for the efficient production of plastic parts at the Chinaplas 2016. (Photo: Arburg)

„As one of the world’s key showcases for the plastics industry, the Chinaplas is extremely important to us. Arburg is growing in the Chinese market because ever more injection moulding companies are demanding top-quality machines, which is why they are placing their trust in our high-end technology and the extensive expertise of our staff,“ says Zhao Tong, Managing Director of the Arburg organisations in China. „Working in cooperation with Chinese partners, one of the applications we are showing this year is a high-performance hybrid machine that produces IML tubs for the packaging sector. We are also demonstrating the production of pill splitters - both in a high-volume application with an electric Allrounder and in an additive manufacturing solution for small batches using the Freeformer. Arburg is the only company able to achieve this.“

### Packaging industry: „Packaging“ Allrounder

Arburg will present a „Packaging“ version of a hybrid Allrounder specially designed for thin-walled applications in the packaging industry at the Chinaplas 2016. This high-speed, high-performance injection moulding machine from the Hidrive series offers high productivity while at the same time reducing energy requirements.

A 2+2-cavity stack mould will be used in the IML application. Compared to a conventional 4-cavity mould, the stack mould technology allows smaller-sized machines to be used: the hybrid Allrounder

570 H with a clamping force of 1,800 kN produces four 200 ml IML butter boxes in a cycle time of around 3.2 seconds. Automation is handled by a two-axis robotic system. This inserts two so-called butterfly labels on the fixed and moving mould platen and removes the finished parts from the centre block.

### Electric Allrounders for efficient high-volume production

An electric Allrounder will be used to produce pill splitters for medical use made from PC on an 8-cavity mould in Shanghai. The cycle time is around 25 seconds and the part weighs 18 grams. Thanks to its great precision and speed, as well as its low emissions, the electric injection moulding machine is ideally suited to the production of medical technology articles. A Multilift Select robotic system from Arburg is used for demoulding.

### Freeformer for prototypes and functional components

At the Chinaplas 2016, a Freeformer will also produce pill splitters for medical technology use from PC - not in large volumes, like the Allrounder, but in small unit volumes without a mould. Once the supporting structures have been removed in a water bath, the two-piece articulated part can be used as a design prototype or for functional tests, for example. This means that expensive aluminium moulds can be dispensed with and new products can reach series maturity much faster.

Using the Arburg Plastic Freeforming (APF) process, the Freeformer additively manufactures functional parts on the basis of 3D CAD data. It processes inexpensive, qualified plastic granulates and is equipped with two stationary discharge units as standard. This enables the Freeformer to process an additional component in order, for example, to manufacture a part in different colours, with special tactile qualities or as a hard/soft combination. Alternatively, it can be used to build structures from a water-soluble support material, enabling complex part geometries to be realised.

This pioneering system is also suitable for use in combination with injection moulding and Industry 4.0 technologies for the customer-specific individualisation of high-volume parts. This is a topic that will also be discussed by Gerhard Böhm, Managing Director Sales at Arburg, in a presentation to the Industry 4.0 Conference to be held on 27 April 2016 as part of the Chinaplas trade fair.

ARBURG GmbH + Co KG  
D 72290 Loßburg

The world of mechanical processing technology will gather at POWTECH 2016 from 19 to 21 April. About 900 exhibitors will present the latest technologies for processing, analysing and handling powder and bulk solids in Nuremberg. Visitors will also have free access to an extensive supporting programme, providing them with first-hand access to the latest process expertise. The VDMA (German Engineering Association) will present best practices in eco-efficiency through its Blue Competence Initiative. Trade visitors will encounter concentrated university research and new talents at the Generation Future special area. The new POWTECH app will help to find personal highlights in the programme.

# POWTECH 2016: Extensive supporting programme offers ready-to-go expertise

- International supporting programme in three forums
- Accompanied by IND EX Safety Congress and PARTEC
- New: Plan your schedule using the POWTECH App

## 19th - 21st April 2016: POWTECH, Nürnberg (D)

Three trade forums with non-stop presentations in the exhibition halls reflect the wide range of sectors and topics at POWTECH. The special areas organised by associations and high-calibre partners at the exhibition also invite visitors to linger, network and exchange knowledge.

### The VDMA: Innovation for greater sustainability

The VDMA, represented at POWTECH by its Drying Technology and Air Pollution Control associations, will highlight its Blue Competence sustainability initiative at the exhibition. Visitors to the VDMA stand will find exhibits and success stories showing how process technology helps to foster more sustainable processes that conserve resources. The VDMA and participating companies span the entire exhibition with the Blue Competence network: a special exhibition guide lists all POWTECH exhibitors supporting the initiative and helps to find sustainable solutions.

### Expert knowledge to take home

The three presentation areas in the POWTECH exhibition halls will offer non-stop presentations, many of them in English. The 30-minute slots and panel discussions will address current topics in the industry in a useful, compact format. The Pharma.Manufacturing.Excellence expert forum (hall 3A), organised by APV (the International Association for Pharmaceutical Technology), will focus on trends and challenges in pharmaceutical manufacturing, including continuous production, tableting and testing, 3D printing and serialisation. The POWTECH Expert Forum (hall 2) will provide non-stop presentations on process automation, particle analysis and measurement technology. This is also where the new POWTECH Awards will be presented in three categories: technology, energy excellence and service. In the POWTECH Technology Forum (hall 3), visitors will receive practical tips about handling bulk solids in the food, chemicals and pharmaceutical industries.

### A bridge to research and new talents

A total of 15 universities, institutes and institutions will present their research projects in the new special area Generation Future at POWTECH and will provide information about partnerships. Here

companies will meet the talents of tomorrow and can recruit new professionals thanks to a constantly updated job board. The DSIV (the German Powder and Bulk Association) invites visitors to network in a relaxed, student atmosphere every day at 16:30.

### Experience explosion protection live

The international IND EX Safety Congress will be held at POWTECH on 20 April 2016. Explosion protection experts from all continents will be on hand to explain different legal requirements by region and the latest approaches for greater explosion protection. On all three days of the exhibition, visitors will be able to experience up close how quickly gas or dust explosions can occur during production and how they can be prevented during moderated live explosions in the outdoor area of the exhibition.

### Summit meeting for process experts

For the first time, POWTECH visitors can use an app to find out information and the times of all presentations and compile their own personal schedule using their smart phone. If desired, the POWTECH App can remind visitors of selected events at the exhibition and help visitors to find their way around thanks to an interactive hall plan. "In 2016 we are raising the visibility of POWTECH's high-calibre programme. Nowhere else do so many experts from the bulky solids and process industry meet in one location," notes Beate Fischer, Project Manager for this event at NürnbergMesse. "Every trade visitor will go home with a wealth of new knowledge – and can start afresh with very tangible solutions and ideas after visiting the exhibition." Visitors can also find details of all presentations and speakers in the POWTECH programme by visiting: [www.powtech.de/programme](http://www.powtech.de/programme)

### The latest developments in particle technology

Alongside POWTECH, the Nuremberg Exhibition Centre will also be welcoming PARTEC, the international congress for particle technology. PARTEC brings together leading particle engineers and scientists to share knowledge about the latest developments in particle formation, agglomeration and coating processes as well as measuring techniques and various industrial applications for particles.

NürnbergMesse GmbH  
D 90471 Nürnberg



CHINAPLAS 2016 Shanghai

# Hot backup – High availability

**25th - 28th April 2016: Chinaplas, Shanghai (China)**

During this year's Chinaplas in Shanghai from the 25th to the 28th of April in hall E1, motan-colortronic Plastics Machinery Co., Ltd (Taicang) will show that the combination of established technologies from both motan and colortronic is key. The focus will be the METRO G material loaders, which can now be fully integrated into existing colortronic systems. At the same time, existing colortronic material loaders can now be integrated into new motan systems. This offers maximum flexibility and saves costs. This highlight will be complemented with the new synchronous dosing unit MINIBLEND V, also a combination of time-tested and reliable engineering from colortronic and motan.

## Modular building block principle enables optimal conveying

motan engineers have combined the best technology from motan and colortronic with the METRO G and extended it with new features. METRO G's modular building block system allows users to configure and create the optimal material loader for any application. Different sizes of material inlets which can be matched exactly to material throughputs and conveying distances, are now offered in addition to the various different material loader volumes. Modules with a tangential material inlet that operate with a cyclone effect are still available for materials with difficult separation behaviour. Customers can also choose between different vacuum valves. Thus, a standard unit can be upgraded to a clean room version with a special membrane vacuum valve. A dedusting module enables fine dust removal at the end of the conveying process in order to protect the following processing step when there is a particularly high demand for material quality. METRO G material loaders allow the configuration of a suitable conveying system for every individual requirement.

The METRO G material loaders can be operated either with a cost effective solution or right up to an innovative state-of-the-art controls system. To begin with, the customer can choose between three different loader controls. Furthermore, different centralized conveying controls are

available: SELVAC 2 is a simple and time-tested electronic system which provides an economically priced solution. The METRONet S is considered part of the standard conveying systems as a soft PLC conveying control. The ultimate, network-compatible tool for complex conveying systems is the METRONet A, either with soft PLC or Siemens S7 PLC with WEBpanel, and decentral CAN-bus nodes. All METRONet controls are completely integrated into the CONTROLnet platform and can be networked with other controls via Ethernet.

## Synchronous dosing units improve recipe accuracy

Just like with the METRO G, time-tested and reliable colortronic mechanics have been combined with high-quality motan controls and have been extended with additional features for the MINIBLEND V. The volumetric dosing and mixing unit MINIBLEND V was designed for free and normal flowing materials and is ideal for translucent and opaque parts. As an additive dosing unit, the MINIBLEND is suitable for injection moulding and

extrusion applications.

As a synchronous dosing unit the MINIBLEND V offers excellent recipe accuracy and reproducibility, which can be traced at any time.





## Hot backup – High availability

The additive is fed vertically and is gravity fed into the inlet of the processing machine through the Y-shaped mixing throat of the unit. This prevents material buildup and bridging effects. The main material and the additive combine just before the inlet of the processing machine. Only at this point do they flow together to create a homogenous mixture – without material segregation.

The particular benefit of disc dosing is the dosing consistency. Compared to screw dosing units, the dosing consistency at throughputs of 0.5 to 5 kg/h can be doubled. The dosing discs are available in three different versions (optional wear resistant versions) from 0.05 to 10.5 kg/h (bulk density 0.6 kg/h). When dosing very small throughputs, a single granule can have a huge effect on the mixture accuracy. In order to solve this problem, all dosing discs are fitted with a cutting device. This makes it possible to cut granules into smaller pieces in order to consistently dose the smallest throughputs.

The brushless motor can be removed very easily and without

tools, and is fitted with integrated motor management, which provides maintenance-free and reliable continuous operation. The controls communication occurs via CAN-bus technology. The unit can be operated with the volumetric motan controls VOLU MC or VOLUnet MC. The VOLU MC controls are an economically priced solution for volumetric dosing of concentrates and master batches. The modern VOLUnet MC microprocessor controls with timer function feature simple and intuitive operation for an Ethernet TCP network connection. Using the intuitive touch screen colour display, an unproblematic operation of the additive auto calibration is possible and up to 50 recipes can be saved.

Moreover, motan-colortronic China will exhibit the whole range of solutions for plastics processing applications. The team of motan-colortronic China looks forward to showing the units and presenting “Hot backup – High availability”.

motan-colortronic gmbh  
D 61381 Friedrichsdorf

Vaisala introduces a brand new carbon dioxide meter for applications with higher CO<sub>2</sub> concentrations, such as for life science incubators, cold storages and fruit and vegetable transportation and storage. The Vaisala CARBOCAP® Carbon Dioxide Probe GMP251 measures from 0 to 20 % CO<sub>2</sub>.

# Vaisala CARBOCAP® Carbon Dioxide Probe GMP251



The new GMP251 probe is intended for demanding industrial CO<sub>2</sub> measurement applications, where stable, reliable and accurate performance is required, and where the amount of carbon dioxide reaches percentage levels.

„For example, the GMP251 is optimal in CO<sub>2</sub> incubator control and monitoring in life science applications, in which carbon dioxide levels are used to control pH levels and to optimize cell cultivation environments. It is also ideal for the various monitoring needs in CO<sub>2</sub> refrigeration applications - for example in cold storage at supermarkets, or at indoor ice stadiums. In fruit and vegetable transportation and storage applications, the probe controls and monitors that

the carbon dioxide the fruits and vegetables naturally emit is kept on the right level for the fruits to stay fresh,“ says Maria Uusimaa, Product Manager at Vaisala Controlled Environment.

The intelligent stand-alone probe provides both analog and digital outputs. The operating temperature ranges from -40 to +60 °C, and the probe has IP65 classified housing: these features makes it suitable for a wide range of measurement applications, for example, in wash-down areas.

### Unique Microglow Technology Enables Ultimate Stability and Prolonged Lifetime

The GMP251 uses Vaisala's second-generation CARBOCAP® technology incorporating the microglow light source technology.

„The Microglow chip is a silicon MEMS emitter infrared source, which improves the reliability and stability of the probes to a new level. We have replaced the traditional filament lamp- with this unique light source, which enables better accuracy, stability and prolonged lifetime,“ says Product Manager Uusimaa.

All products are manufactured in Finland by Vaisala, and include a calibration certificate.

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## Accurate Control of Ventilation and Air Conditioning Systems

# Air Velocity Transmitter for HVAC

The EE650 air velocity transmitter from E+E Elektronik is optimized for accurate, reliable and long-term stable measurement of air velocity in ventilation ducts. With selectable measuring ranges 0-10/15/20 m/s (0-2000/3000/4000 ft/min) and high accuracy, the EE650 suits perfectly all common HVAC applications. The new E+E VTQ flow sensor element of EE650 operates on the thermal anemometer principle, is very robust and highly insensitive to pollution.

Thanks to the design and the innovative flow profile of the VTQ flow sensor element manufactured by E+E in thin-film technology, EE650 features an outstanding resistance to contamination. The sensor element impresses also with high mechanical stability realized through state-of-the-art transfer-moulding technology. The exceptional long-term stability and the wear-free thermal measuring principle minimize the EE650 maintenance demand and ownership costs.

The IP65 / NEMA 4 enclosure protects optimally the electronics against pollution. Due to its design, the EE650 can be very easily installed and commissioned. The mounting flange facilitates precise positioning of the probe in the air stream. The duct version can be also mounted directly onto the ventilation duct. With the remote probe version, the sensing probe can be installed up to 10 m away from the electronics.

The measuring range, the output signal (4-20 mA or 0-10 V) and the response time can be selected with jumpers on the electronics

board. The maintenance is considerably simplified by a digital interface which allows for EE650 to be adjusted by the user.



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