

Press release COMPAMED 2010 – final report

COMPAMED 2010: High-Tech Realities and Visions for the Future

Ever more complex medical technologies represent an extreme challenge for suppliers

The leading international trade fair for suppliers of medical technology, COMPAMED in Düsseldorf, continues its success story in parallel with MEDICA, the world's biggest medical trade fair. Of the 137,200 professionals who visited MEDICA 2010 (17 to 20 November 2010) and COMPAMED 2010 (17 to 19 November 2010) and who were able to visit both events with one ticket, more than 16,000 came especially for COMPAMED. "The number of exhibitors has grown steadily to 575. The internationality is increasing equally amongst exhibitors as well as visitors, and the percentage of decision-makers amongst the visitors is rising," concludes Joachim Schäfer, managing director of Messe Düsseldorf. The full halls at COMPAMED (8a and 8b) are testimony to the steadily increasing interest in the manifold aspects of medical technology – from materials, to measuring and manufacturing processes, all the way to final products packaged under sterile conditions. "More and more companies, from completely different sectors, are contributing their expertise to the medical technology market, which demonstrated a particularly high stability during the past crisis. That is a big drawing point for many suppliers," says Dr. Uwe Kleinkes, managing director of the professional association of microtechnology IVAM, about this development.

Touring COMPAMED 2010, purchasers from the medical technology industry were able to see first hand how suppliers are meeting the highest requirements with respect to the technical maturity, quality and compactness of components and how their innovations are setting trends in medical technology.

"Personalised medicine will be the trend for the next 10 to 20 years, providing a huge opportunity for medical technology," stresses Prof.

Thomas Schmitz-Rode, chairman of the German Association of Biomedical Engineering DGBMT in the Association of German Electrical Engineers VDE as well as director of the Institute of Applied Medical Engineering at the Technical University (RTWH) of Aachen. One vision for personalised devices was demonstrated at COMPAMED 2010 by Ergonomidesign AB of Stockholm with its miniMe. The Swedish company is considered one of the world's leading design consultants and has been working in the field of life sciences for 40 years. Its future solution is a small device no bigger than a wristwatch which registers various vital parameters such as body temperature, blood pressure, cholesterol and blood sugar levels, and also detects indications of infectious diseases through respective sensors, processing all the data with an integrated software. RFID (radio frequency identification) as well as NFC (near field communication) are used to communicate with iPhones or other smart phones, for instance. This allows data to be transmitted to the Internet, giving physicians direct access to their patients. "The technologies already exist. Now we are seeking partners to implement our idea," explains Marcus Gabrielsson, industrial designer at Ergonomidesign.

But this visionary application was only one of the many examples that underlined the importance of ergonomics at COMPAMED 2010. Ever more complex medical technology represents a huge challenge for hospital staff, who are always pressed for time. "In light of this, ergonomics is becoming more and more important. It ensures that medical devices can be operated intuitively and error-free," explains Prof. Uvo Hölscher, head of the Ergonomics technical committee of the DGBMT. Worldwide, there are more than 1,000 standardised symbols in use, but only 50 percent are correctly understood. Whereas defects in medical devices are becoming ever rarer, errors in their operation are increasing. "Manufacturers of medical technology must work more closely with ergonomists in order to reduce the amount of data displayed on their monitors and to improve language-neutral communication by using clear symbols," says Hölscher.

An implant that is breathed out

Innovative materials with custom manufacturing and joining processes remain one of the main fields at COMPAMED. For instance, DS Degradable Solutions AG in Schlieren near Zürich sells implant materials that dissolve in the body. "Our material is a polylactide (PLA) that is eventually breathed out or excreted as carbon dioxide and water," says Dr. Kurt Ruffieux, CEO and founder of DS. The material remains in the body anywhere from six weeks to six years and can be adapted to the required task. One completely new application allows physicians to inject bone material as a filler wherever it is needed, for instance in the area of the jaw or the spine. "It is frequently necessary to create a base prior to inserting a titanium dental implant. Our material composition, comprising calcium phosphate and polylactide, is excellent for this application," states Ruffieux. Spang & Brands GmbH in Friedrichsdorf has established itself as a specialist in processing biodegradable plastics. "To make custom products such as nails, we use special polymers from Boehringer that cost 2,200 euros per kilogramme. We do everything from development, to engineering to injection moulding," says Friedrich Echterdiek, CEO of Spang & Brands.

The important thing with those types of materials and implants is correct processing. The Fraunhofer Institute for Laser Technology (ILT) in Aachen uses selective laser melting (SLM) to make complex skull parts made of bioresorbable ceramic materials (tricalcium phosphate and PLA). Based on CAD data, such implants can be manufactured very quickly. "In many cases a resorbable material is better than a metal implant for repairing bones damaged in accidents or by tumours or for repairing congenital bone defects," explains Lucas Jauer, who heads the project at ILT. The basic materials for SLM, with which patient-specific, form-fitting bioresorbable implants can for the first time be manufactured with a great diversity of geometries, are powder-type materials that are melted on in layers by means of a focused laser beam.

Not only the shape but also the final surface finishing are decisive for implant quality. In order to improve quality and cost effectiveness, Haas

Schleifmaschinen GmbH in Trossingen and Rösler Oberflächentechnik GmbH in Untermerzbach have combined their know-how and are now offering a start-to-finish processing concept from the moulded blank to the finished high-tech implant. Even during the planning phase of a new order, the companies jointly decide on the optimal processing technology and set the parameters for complementary grinding processes. The Haas Multigrind CB provides the shape, Rösler's newly developed compact drag finishing systems finish the implant parts (up to 28 pieces simultaneously) by dragging them through the grinders.

A laser for cold material processing

Lasers not only play a pre-eminent role in implant production, but also in medical technology in general. Rofin-Baasel Lasertech GmbH & Co. KG in Starnberg has expanded the range of laser systems by the first industrial femtosecond laser (one femtosecond is one quadrillionth of a second) called StarFemto. "Its impulses are so short that the atoms do not oscillate and therefore do not become warm. This allows "cold" processing of materials, which is also burr-free," explains Dieter Mairhörmann, Sales Manager Medical Industry at Rofin-Baasel. The materials that can be worked range from low-melting polymers all the way to shape memory alloys such as nitinol, which are difficult to process. Glas KGaA Herbert Kubatz GmbH & Co. in Berlin specialises in processing in the area of innovative joining technologies and, in addition to glueing and surface coating, now also offers glass welding. "The process consists of two steps: activation and metallisation. After that, even glass, ceramics and plastics such as PEEK can be joined with conventional welding processes," explains Sven Kurth, head of Medical Applications at Berliner Glas. The company, which only carries out custom orders, sees application opportunities for the various joining techniques primarily in endoscopy, ophthalmology and dentistry.

One of the main interests at COMPAMED remains hospital hygiene. The dangers presented by multi-resistant bacteria such as MRSA are well known – every year more patients succumb to these bacteria than to AIDS. Consequently, new solutions to improve hygiene through the use of silver

are gaining in importance. BASF Future Business GmbH chose COMPAMED to exhibit in this field for the first time ever. "We provide individually formulated material solutions which are primarily based on silver ions used as a surface coating or as an integral component primarily of plastics. We differ from the competition particularly in that we formulate exactly according to customer requirements," says Edgar Eichholz, New Business Development Manager EU Medical Device Materials. Antibacterial surfaces made by injection moulding or painting are also produced by WAREMA Kunststofftechnik und Maschinenbau GmbH in Dillberg, which uses silver agents from the Swiss company Sanitized AG in Burgdorf. "Our surfaces have a proven durability of 30 months, which we established in under-water tests," states Steffen Grün, head of Medical Technology Sales at WAREMA.

Hygiene is not only paramount in hospitals, but also for medical technology products themselves. Adequate handling, which also includes the packaging, is extremely important. "We are increasingly responsible for product quality assurance in addition to packaging. Also, there is a trend towards moving the packaging processes into clean rooms," emphasises Tanja Schanz, head of Customer Service at Inpac Medizintechnik GmbH in Birkenfeld. Prerequisite for sterile packaging is efficient cleaning, which Inpac ensures through disinfection, ultrasound and plasma.

Long-term hope for paraplegics

Materials, systems and packaging are solutions for today, but COMPAMED also provides glimpses into the more distant future. These include not only the visions of Ergonomidesign, but also the NEUWalk research project funded by the European Union. "Our long-term aim is to use neuroprosthetics to restore mobility to paraplegics," explains Dr. Peter Detemple, head of Microstructuring and Sensor Technology at the Institute of Microtechnology (IMM) in Mainz. He hopes to develop a neuroprosthetic interface system between the brain and the spinal cord, which is based on leading-edge microtechnological and microelectronic processes. These include flexible, implantable multielectrodes and microprocessor-controlled neuroprostheses that unite wireless energy and signal transmission as well

as sophisticated neurostimulation means and neuronal recording and evaluation. Further developments in this area will be revealed at the next COMPAMED (16 to 18 November 2011), in addition to numerous other innovations.

Online information: <http://www.compamed.de>

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