PHARMA.
Our pledge for interpack: trends, visions, solutions ... and excitement.

COMPETENCE.
Plug & Produce: a vision of a new industry standard.

COMBINED.
Human-robot collaboration: the future of work starts here.
DEAR CUSTOMERS,

Digitization, smart machines, robots which are taking over the activities of humans, the intelligent collection and use of data not only in production but also throughout the entire value chain, including the patient: all these things will have a lasting impact on the pharma and biotech industry in the next few years. New possibilities for increasing efficiency and saving time and costs in production are emerging, along with new market opportunities for you.

These themes presuppose two things: networking and communication. And this is precisely our strategy as a group of companies: to provide integrated solutions, to listen to you, our customers, to understand your requirements and to achieve success together as a team. And this is also what the working title of this issue of facts stands for: succeeding together.

You will read how we can already support you in networking with your patients through our Pharma 4.0 concept and “smart” solutions (page 38). Be surprised at how, together, we wish to make the vision of an intelligent pharmaceutical factory a reality (page 36). And experience how experts see the use of collaborative robots and the future of work (page 16).

This issue also gives us an opportunity to invite you to visit us at interpack in Düsseldorf from 04 to 10 May 2017. Convince yourself of the pharma expertise of our companies and take a look at our solutions to current challenges facing the industry: OEE optimization, falling lot sizes, increasing complexity and EU directive 2011/62/EU, which comes into force in 2019 (page 22).

Numerous world firsts await you. The brand new generation of Mediseal blister machines, for example, is setting the standard, in both technical and visual respects (page 28). Seidenader’s DE.SY.RE, which enables contactless handling of delicate glass containers without any loss in performance (page 34). Or Werum’s vertical integration concept, which creates the preconditions for Pharma 4.0 solutions (page 36).

In addition, you can get to know Fargo Automation. This USA company joined the Medipak Systems team at the beginning of the year. Fargo’s products are the basis for integrated line solutions offering optimal efficiency (page 42).

So what could be a better opportunity than interpack to meet us in person and exchange ideas? I look forward to your visit.

Best wishes and greetings,

Clemens Berger
CEO Medipak Systems
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1. **THAT GOBIES MAKE EXCELLENT LOOK-OUTS?**

For its symbiotic partner the pistol shrimp, also known as the snapping shrimp, the watchman goby keeps an eye on everything. The shrimp is more or less blind and is therefore dependent on the goby’s visual acuity. While it constantly burrows away at its burrow, the finger-length fish protects its rear. It observes the environment with its eyes, positioned at the top of its head, and hides itself in the shared burrow at lightning speed if danger is sensed. The pistol shrimp, which is almost constantly in contact, using its long feelers, with the goby as it works, follows it on foot. The goby therefore keeps watch while the shrimp constantly newens and extends the burrow, an endless Sisyphean task. In this way, the goby provides itself with a place of refuge on the barren sandy bottom of the Java Sea.

2. **THAT SEA ANEMONES ONLY REALLY GET MOVING THANKS TO HERMIT CRABS?**

Sea anemones belong to the class of corals and are considered to be immobile. They do not swim through the water like jellyfish, but sit on the bottom of the sea... on hermit crabs, or rather on the shells inhabited by hermit crabs. With the help of this means of transport, the sea anemone travels to new, nutrient-rich hunting grounds, where it makes forays using its poisonous tentacles. Quite often a fair proportion of the hermit crab’s food goes to the sea anemone. And what does the hermit crab get from this? It benefits from a deadly bodyguard which protects it from enemies and other predators.

3. **DID YOU KNOW...?**

Facts and curiosities about symbiosis in the animal kingdom

**3. THAT GOBIES MAKE EXCELLENT LOOK-OUTS?**

For its symbiotic partner the pistol shrimp, also known as the snapping shrimp, the watchman goby keeps an eye on everything. The shrimp is more or less blind and is therefore dependent on the goby’s visual acuity. While it constantly burrows away at its burrow, the finger-length fish protects its rear. It observes the environment with its eyes, positioned at the top of its head, and hides itself in the shared burrow at lightning speed if danger is sensed. The pistol shrimp, which is almost constantly in contact, using its long feelers, with the goby as it works, follows it on foot. The goby therefore keeps watch while the shrimp constantly newens and extends the burrow, an endless Sisyphean task. In this way, the goby provides itself with a place of refuge on the barren sandy bottom of the Java Sea.

4. **THAT THE SYMBIOSIS BETWEEN ANTS AND APHIDS IS NOT AS HARMONIOUS AS YOU MIGHT THINK?**

Aphids secrete honeydew, a sugar-rich liquid which ants need in order to survive. They are therefore kept by ants in the same way that humans keep cows: in large herds, in a safe stall for protection from rain and predators. The ants vehemently protect their pets from enemies such as hoverflies and ladybirds. However, scientists have discovered that to keep the herd together, the ants take some measures which should certainly not be used in animal husbandry. They secrete a chemical which significantly slows the aphids down and prevents them from leaving the nest. Alternatively they also sometimes like to bite off the aphids’ wings. Too bad, thinks the aphid, as it continues to suck the sap.

5. **THAT TREES AND MUSHROOMS ARE ALSO SYMBIOTIC?**

Mycorrhizae are mushrooms which live in the roots of trees. In its symbiotic relationship, the mushroom is responsible for nutrient production and the water supply. Coniferous trees in particular, which frequently grow on soils low in nutrients, are dependent on mushrooms. In return, the trees supply their mushroom partner with sugar produced by photosynthesis and therefore with important carbohydrates which the mushroom cannot produce for itself. Incidentally, the mushrooms really put themselves out for their tree: If a tree is attacked by a parasite, this information is transmitted via the hidden network under the forest soil (mycelium) to trees in the vicinity in less than six hours. This gives them time to develop a defense strategy.

6. **THAT TARANTULAS EMPLOY BABYSITTERS?**

Who would want to be friends with a tarantula the size of a dinner plate? The South American narrow-mouthed frog, however, is not prejudiced. It has taken the enormous Goliath tarantula into its tiny heart. The small frog protects its eggs from ants, mites and other animals, which would prey on the cocoons. These enemies are far too small for the mummy spider to fight. So the eight-legged animal has taken the narrow-mouthed frog off its menu and provides it with protection from its – larger – enemies.
Wencke Petersen awaits her forthcoming mission for Doctors without Borders. This will be her twelfth, and it will take her once again to the Congo. For two months the forty-four-year old will be on the spot as a logistics specialist for the humanitarian relief organization. She has already been to the Democratic Republic of the Congo, South Sudan, Haiti, Liberia, Guinea, Central African Republic and Ethiopia. When she returns, it will be spring in Germany.

When she is on site, she tries to ensure that medicines, medical materials and foodstuffs for the helpers do not run out. Only once has her job taken on a quite different aspect. From August to October 2014, during her deployment in the context of the Ebola epidemic, she stood for six weeks at the entrance of an Ebola treatment centre in Liberia and every day she had to decide which of the innumerable patients she could take in. “At the beginning we simply had far too few beds,” says Wencke Petersen. “When I arrived, the centre was still under construction. I was constantly able to let only the most serious cases in. I had to send all the others home. With the knowledge that they would be cared for there by their relatives, who would probably also get infected. I would have never thought that I would get into such a situation. Such a thing is tolerable only with a team behind you and with the thought that I was not alone and I was doing it for the team.”

Wencke Petersen is married and lives in Hamburg. The trained nurse studied logistics and hospital management in Flensburg and left her job as a financial accountant in 2011 to live her dream. Even when she was a teenager, she had this dream: at some point she wanted to work abroad for a humanitarian organization. This became Doctors without Borders. “When catastrophes are reported on television and I see all the suffering, I feel this urge: I have to go! I have always felt like that.”

This is how it was after the Ebola outbreak. “In summer 2014, when I learned about the increase in cases, it was clear to me: If Doctors without Borders needs logistics specialists, I’m going down there.” When the call came, Wencke Petersen had only a week to prepare. She was prepared for the mission in Brussels and then flew via Casablanca to Monrovia, the capital of Liberia. There she met a team of 50 international colleagues and many other local co-workers. “When you’ve already been doing it for some time, then you will know someone or other from other missions. But most of the faces are new. All the experienced colleagues who have time, who want to and who can, come together. From all the countries on earth.” But on the Liberia mission, a strong team feeling grew within a very short time.

When colleagues are selected, Doctors without Borders considers ability to work in a team and conduct in conflict situations as well as professional suitability. Only proven team-workers can be accepted for missions. In addition, before their first mission the ‘expats’ undergo several days’ preparatory training during which teamwork, co-operation and communication are further reinforced through interactive exercises.
Team leaders undergo special training for team leadership, managing conflict and feedback discussions and successful delegation. In the field, in the event of conflicts, the team can call on external support. And every colleague has the possibility of getting hotline support round the clock in case of personal crises.

During the mission, almost everyone came up against their personal limits and was grateful to be able to share this with the team members. Wencke Petersen remembers a situation at the gate. “This man was there; he came to us with his three nieces. The parents had already died from Ebola and the girls too showed symptoms. But the centre was full. We could not accept anyone else. When he and one of the girls began to cry, I had to turn away, tears were running down my face.” Coincidentally, a colleague was standing behind me. He looked at me and said: ‘Just let the tears run.’ He couldn’t do any more – we had this strict instruction that we were not allowed to touch each other. But at that moment he was there for me, and that’s what counted. So eventually I turned around and continued. In the evening we were able to take in the girls.”

Being there for each other was the most important thing of all within the team. Because a mission such as the one in Liberia is only possible, according to Wencke Petersen, as a team. “We had to be able to rely on each other totally. In any situation. I knew that the others were there for me if I needed them. And I wanted to give that back. So just four weeks after my return to Germany I am setting out again for Africa. I just had to do something. And one does that partly because of this strong sense of togetherness.”

Wencke Petersen speaks of the beautiful moments for the team - such as the discharge ceremonies for patients who had survived Ebola. “They got new clothing, and the children got something to paint. And they were applauded by us all. At those moments we knew, okay, so not everyone dies. There are patients who survive and who can be discharged. That was so important, for everyone. For the patients, but especially for us, the helpers.” As she speaks, one hears the relief, indeed the joy in her voice. And one can feel where Wencke Petersen gets her optimism and the will to carry on, again and again. When the ceremony includes a patient whom one has admitted to the Centre oneself, one has tears in one’s eyes. And we know why we are doing this: We get so much back from it.”

DOCTORS WITHOUT BORDERS

is a private international organization which pursues the goal of providing medical aid to people in need regardless of their ethnic origin or religious or political beliefs and at the same time making the public aware of their situation. In 2015 the organization, with approximately 34 000 co-workers, provided humanitarian aid in some 60 countries throughout the world.

In order to be able to react quickly to humanitarian crises, Doctors without Borders has developed 500 different emergency kits, which are stored world-wide in logistics centers. They include all essential medicines and materials for different emergency situations. Ready-packed and already cleared by customs, they can reach people in emergencies very quickly.

The Doctors without Borders network consists of 24 national and regional member federations, organized in five operational centers (OCs). The German section is part of Operational Centre Amsterdam (OCA), which was able to achieve revenues of 125.1 million euros in total in 2015, 116.6 million of which was from individual donations.
In the early summer of 2016, Elvira and Friederike badly affected people in large areas of Germany. At the end of May and the beginning of June, the two areas of low pressure, also known as the “Central European low”, were responsible for severe storms with heavy rain and lightning strikes, gusts of wind, hail and tornadoes. They caused inundations, flash floods and mudslides, caused approximately a billion euros worth of damage in Germany alone and took human lives.

In the fight against the consequences of this natural disaster, thousands of full-time and voluntary helpers were deployed throughout Germany. They were also present in Simbach am Inn in Bavaria. According to the German weather service, 180 liters of rain per square meter fell in 48 hours. On 1 June 2016, a Wednesday, an embankment was breached in the centre of the town, flooding the locality. One of the numerous helpers on the spot was Wolfgang Plietsch, from the Federal Agency for Technical Relief (Bundesanstalt Technisches Hilfswerk – THW). Together with other THW helpers, he was on the spot for days on end. They rescued people from the flooding, provided lighting for operations sites, pumped away water, built temporary bridges, helped with the clearing up and for two weeks provided the population with drinking water from mobile drinking water treatment plants.

The 50-year-old typesetter and business IT specialist has been a member of the THW for more than 36 years. Since 2011 he has headed up the Simbach local association. The memory of this mission is still fresh in his mind, even today. Not only because the mission was a heavy burden for all those involved. Above all because whenever Wolfgang Plietsch walks through the town of Simbach and every time he drives through the Rottach-Inn region he encounters places, buildings and people who remind him of those terrible days and weeks, but also of moving, happy moments during the disaster.

What was your first thought when the mission became a reality? We had got together with Simbach’s mayor and the fire brigade because of the heavy rainfall. After this crisis meeting, we launched the mission for the THW and the fire brigade. At the time I thought: ‘Just let’s hope it’s not as bad as the flood in Simbach in 1991.’ At that time, the brook of the same name overflowed its banks. We prepared ourselves for this magnitude of event. When in the afternoon of 1 June an embankment in Simbach’s town centre was breached over a length of 75 m, it was clear that this flood would assume even greater proportions.

At what point in time did you realise that this task could only be handled by a team? It was after a helicopter flight over the affected area. This was when we realised the full extent of the rainfall and we knew that everyone now had to pitch in: the mayor, the fire brigade, the water rescue service, the Red Cross, the local and federal police force and energy suppliers, as well as local providers and building contractors. And of course us from the THW.
What were the THW’s tasks during the operation?
Very many skills were in great demand for this operation. We pumped out cellars and underground car parks, removed fallen trees, rescued people trapped by the water, built temporary bridges and supplied the population with drinking water from our mobile drinking water treatment plants. More than 5.5 million liters of water – more than ever before on a mission within Germany. All this was only possible thanks to the support of 53 other local THW associations and their specialist know-how.

How is that compatible with your private and working life?
All THW helpers can be reached 24/7. When the alarm is raised, everyone assembles as quickly as possible. Depending on the damage scenario, we then set up groups with appropriate specialist know-how.

What united you all and kept you all together as a team?
At the beginning it was the thought that ‘we must help the people of Simbach.’ The main thing was to rescue people in serious danger because of the flooding. We in the THW supported the water rescue service and the Bavarian Red Cross, as far as we could. We were able to meet this challenge successfully only as a group. Gradually, every day, we achieved both small and great successes, together: the completed temporary bridge, the daily supply of drinking water, and much more besides, to Simbach residents.

It was simply fantastic
to see how the gears of the THW engaged at such a time.

How did you manage, basically, to be ready to act after only a few hours?
All THW helpers can be reached 24/7. When the alarm is raised, everyone assembles as quickly as possible. Depending on the damage scenario, we then set up groups with appropriate specialist know-how.

How is that compatible with your private and working life?
We all do it voluntarily, so in such a situation we are reliant on our families, friends and employers pulling together. If a helper has to go on a mission during working time, the employer will release him or her, if possible. The employer is then reimbursed by the THW for the loss of the worker.

What do you rely on within your team?
Within the local association we have generally known each other very well for a very long time. We complete the basic training as well as special training together and get together on exercises. Our regular meetings and joint leisure-time events are also quite important. In this way a strong sense of unity develops; we can rely on it immediately on an operation.

Do ties build up during an operation with people who are affected on the spot?
Again and again in Simbach people came up to us, spoke to our local helpers, asked them for assistance or wanted to share their fears and concerns. You have to be ready to listen to people’s stories. That is important. Because in the final analysis everyone pitches in in such a situation, in any way they can.

Did you or anyone in your team come up against personal limits during the operation?
This happened to many of us. Several of our helpers were personally affected; one lived in the middle of the area which suffered damage. Many of us were on the go continuously for 19 days at a stretch. At first we had to get by on three to five hours sleep. In any event, that has left me its mark on me.

What was your job within the team?
As a technical adviser, I was part of the leadership of the operation and constantly gauged what assistance we in the THW could provide during the operation. I kept in constant touch with my colleagues locally, with the THW management unit and with local companies such as construction companies whose support we urgently needed for this operation.

How did you cope with that in the team?
During the operation there were counsellors from other organizations on the spot who provided psychological help for the population and the helpers. Once the operation was over, we met as a group and talked about everything. Actually, this is what we always do. In addition, there is the possibility for helpers of working through particularly onerous situations with the help of experts. The THW has special aftercare teams for this.

Was there one particularly beautiful moment which you remember?
That would be on 2 June, the day after the embankment broke, when THW units requested from the centre arrived in Simbach. It was simply fantastic to see how the gears of the THW engaged at such a time. That was when we knew that we would manage it, together.
Safety, productivity and acceptance are factors, which according to robot manufacturer ABB, the successful use of collaborative robots depends. The machine building company Dividella is using such a robot as part of a packaging system for the first time. The system is being built for F. Hoffmann La Roche, which expects to see benefits from using collaborative robots for packaging small quantities. Safety and productivity aspects have been clarified, but how well have these man-made colleagues been accepted?
HUMANS HAVE SPECIFIC ABILITIES AND SO DOES A ROBOT. THEY COMPLEMENT EACH OTHER IN THEIR DIVISION OF LABOR AND EXPLOIT THEIR DIFFERENT STRENGTHS.

In his Laws of Robotics, published as part of a short story in 1942, Russian-American author Isaac Asimov wrote about robots. Asimov’s rules state: A robot may not injure a human being or allow a human being to come to harm; a robot must obey human beings and it must protect its own existence. In this context, the integrity of humanity is all-important. Even if Asimov’s laws have not been concretely integrated into the programming of today’s industrial robots, they have extensively shaped the way in which people view robots.

Asimov’s world of science fiction where humans and robots live and work together, is becoming more and more of a reality. The image of the industrial robot which carries out its work surrounded by protective fences has changed. Human-robot collaboration is defined as humans and robots working hand-in-hand, at the same time or next to each other on a workpiece. They are no longer separated by protective devices.

Britta Kirchhoff and Patricia Rosen from the Federal Institute for Occupational Safety and Health envision three types of interaction: Co-existence with separate tasks, co-operation with a common goal and different sub-tasks, and collaboration, i.e. “real” teamwork, with a common goal and common sub-tasks.

Does real teamwork mean teamwork on an equal footing? “Today, humans and robots are working more closely together than ever before,” says Mark André Zingg, Local Business Unit Manager Robotics at ABB Switzerland. “But I wouldn’t say they are on equal footing. Humans have specific abilities and so does a robot. They complement each other in their division of labor and exploit their different strengths.”

So within mixed teams everyone does the job which best suit their strengths and abilities. The robot is responsible for the ‘4D tasks’: those which are dirty, dull, dangerous or delicate. Its human colleague, relieved of physical strain, boredom and danger, can take care of more cognitive tasks and those that are less physically strenuous. “Humans can concentrate on their strengths: Grasping complex situations, identifying the causes of problems, developing creative solutions – and all this in co-operation with other humans”, says David Kremer, who investigates what the division of labor between humans and machines will look like in the future, at the Fraunhofer Institute for Industrial Engineering. Zingg also convinced that in this way robots contribute to improving the quality of the workplace. “Robots are taking on jobs for which there will be less and less demand in the labor market of the future, because of better educational standards.”

Is this always a win-win situation? According to robot manufacturer ABB, the successful use of collaborative robots depends on safety, productivity and acceptance. Standards and regulations, as well as a multiplicity of safety precautions have been developed to protect human workers.

Zingg calls this inherent safety and refers to the fact that ABB’s collaborative robot, YuMi, does not need any additional safety devices such as photo-electric barriers, protective fences or the like; thanks to its design, material and low weight. “YuMi was designed from the outset in such a way that cooperation in direct proximity to humans is possible at any time.”

Just how productive can robots be if they must constantly take their human colleagues into consideration? Or, in the final analysis, are robots which can do their work reliably and separately from humans more productive? “It depends whether you are talking about traditional industrial robots, which work autonomously, or collaborative robots. The right automation solution depends on the task,” says Zingg.

In addition to its flexibility, one of YuMi’s unique strengths is that it can be programmed quickly by the operator: “It’s easy, almost playful operation in an important reason the robot was so readily accepted,” says Norbert Schlegel of Dividella. The Swiss company is building the system for Roche. “Whilst in operation, YuMi does not have to be programmed by us. We “train” it as we would a new colleague, showing it where the trays with the products are located and guiding its arms during filling.”

And on the required degree of flexibility For the last year, F. Hoffmann La Roche, which has always used robots with protective barriers, has been conducting trials with ABB’s collaborative robot solution, YuMi, at its Pharma Packaging division. The company is seeking benefits from its use in the area of small-lot packaging. “Among other things we want to significantly reduce changeover times by deploying YuMi applications to achieve an increase in productivity,” says Roberto Schlotter, Head of Technical Support Packaging Operations and project leader. “This can be a crucial competitive advantage for other locations and countries.”
After the first pass, the robot can repeat this independently,” explains Schlegel, who manages research and development.

In addition to intuitive operation, aspects such as the shape, color and function of the robot play an essential role. Most robot manufacturers pay attention to creating positive associations when deciding on the color of a robot. Far from the signal and warning color orange, collaborative robots are now designed in white or green tones. Bionics, the teaching of the transfer of phenomena from nature to technology, also plays a part, when robot arms remind one not only visually but also haptically of human limbs. In the case of YuMi, its rigid magnesium skeleton is covered with a floating, flexible plastic shell and protective padding. Similarly to the human arm, YuMi does not have pinch points.

With YuMi, Roche opted for closer cooperation between humans and the robot, to combine the advantages of both methods of working when processing small lot sizes. “In the beginning there was a degree of uncertainty among the workers,” admits Schlatter. “We, therefore, decided on the greatest possible transparency in the project. Goals and project progress were communicated proactively, and discussions were conducted openly. In addition, we deliberately developed the pilot project in the middle of the packaging plant. This meant that the workers were able to monitor progress at all times.”

Transparency and participation in robot projects can be endorsed by Kremer too; he has long been involved in successful change management. “Employees have to be carried along with the project from the outset. Many people have seen how jobs have been lost to automation, and robots are often equated with automation.” In this context, in Kremer’s opinion, the collaborative robot constitutes the bridge between manual work and fully automated production. As a result of this new cooperation between humans and robots, completely new tasks could arise in the future which could not have been handled by humans or robots alone. This is the ‘1+1=3 effect’, as Kremer calls it.

Kirchhoff and Rosen see the extent to which humans are able to predict a robot’s actions as an important criterion for acceptance. “The actions of the robot must be predictable and assessable for humans.” They also refer to greater flexibility in contrast to full automation with industrial robots. In their view, this creates another crucial criterion for acceptance: The organization of new tasks which are based even more strongly on the needs of humans and which make the technically best possible use of robot assistance. “When workers experience a subjectively perceived increase in their job performance they accept new systems,” say the two ergonomists.

Whether or not humans and robots will work together very closely, perhaps even in collegial teams, is unforeseeable at this point in time. That they will do so is a certainty for Zingg. “In the future, humans and robots will work side-by-side more and more frequently in many traditional industries and increasingly in other fields.”

Kremer too is certain: “The possibilities of digitization and human-robot interaction will create new tasks which are more interesting for humans and which will also generate greater revenue.” Whether humans and robots will engage in real teamwork in this context is still an open question for Kirchhoff and Rosen. The cooperation model appears more likely to them. Schlatter sees a future of smaller, highly flexible and efficient workplaces that are equipped with collaborative robots for specific tasks. “It is clear to us that a change to the existing way of working is coming. It’s the only way we can remain competitive.”

These concepts are no longer fantasies dreamt up by Isaac Asimov for the 1940s and beyond. Exactly what they will look like and when they will become a reality remains to be seen. Will they actually occur? The 1.4 million industrial robots which will be installed for the first time by 2019 globally, according to the International Federation of Robotics, leaves little room for doubt.
From 2019 all medicinal products will have to be provided with security features (serialization and tamper evidence). The search for suitable solutions for technical implementation and the complex data handling is occupying pharmaceutical companies. Our solution? A scalable approach encompassing service, software and hardware, to meet your individual requirements.

Personalized medicine, innumerable language and country versions and the way modern medicines work mean that the diversity of secondary packaging of pharma products is constantly rising and lot sizes are falling. With the resulting OEE losses. Does it have to be so? Our solution? Optimization at all levels: Flow of materials, machines, lines and processes.

How can the pharma industry generate sustainable competitive advantages with the help of Industrie 4.0? Our solution: products and services for intelligent networking of the value creation chain: Plug & Produce, EMI (Enterprise Manufacturing Intelligence), smart packaging, smart devices, condition monitoring & predictive analytics. To this end we combine process knowledge, machine know-how and information and communication technology.
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The new generation of blister machines for parenteralia
- Modular machine design
- Innovative design and control concept

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development and production of innovative folding boxes
- 3D folding boxes
- Child-proof packaging
- Semi-automated inspection
- Offline serialization of folding boxes
- Supply on Demand
- Top Load Service

INTERPACK 2017
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- Secure, unique product handling in every stage

SEIDENADER DE.SY.RE
Handling system for perfect inspection results
- The path is the goal...

SEIDENADER CP600-P5000
Blister line for solids with high-speed cartoner
- Continuous operation
- High-speed blister transfer by robot
- Output up to 900 folding boxes per minute

BLUE HOUR
A RELAXED END TO THE DAY AT THE FAIR
WHERE?
at Medipak Systems
Hall 16 – Booth A 25
WHEN?
Thursday, 04 May – Happy Hour
Friday, 05 May – Health & Happiness
Tuesday, 09 May – Swiss-Bavarian Night
START?
16:30
FREE ADMISSION!

INTERPACK 2017
DATES
04 – 10 May 2017
Daily 10:00 – 18:00
Düsseldorf Trade Fair Centre
North, East and South entrances
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Am Staad

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MEDIPAK SYSTEMS
HALL 16 – BOOTH A25
The new line incorporates more than 80 years’ experience of blister technology. Improving overall equipment effectiveness has always been a key theme. The OEE performance indicator encompasses the availability of the equipment, the output it achieves and the quality of the products manufactured on it. In the development of the new blister series, Mediseal has concentrated in particular on significantly increasing machine availability. Mediseal has been able to achieve this above all through the shortened change-over and cleaning times. For more productive time.

Mediseal achieves joy in production through a brand new design and operating concept for the equipment. A high-gloss white frame structure encompasses the work area. In its lower section, this also provides the grip to open the covers. The machine is accessed via the complete front of the machine and so can be optimally reconfigured and cleaned. All the covers open upwards ergonomically, with the pivot point right at the back. When open, neither pillars nor supports obstruct access to the machine.

A circulating blue line symbolizes the flow of product through the machine and as it narrows it symbolizes the merging of the product. In the event of faults, it serves as an illuminated display element to provide rapid assistance to the operator.

The machine is operated via Mediseal’s own HMI. The Full-HD multitouchscreen is covered by a glass panel flush with the high-quality aluminum housing and its perfectly smooth surface means that it meets all GMP and cleaning requirements.

The operating concept is based on self-explanatory symbols. The machine is operated using jobs, through which the operator is guided via a clear sequence of actions. In combination with a graphic fault display, training on the machine is significantly simplified. Pre-defined jobs and the relevant information can be individually changed, added to or newly created.

The BE was the first machine developed by the company using a totally modular approach. It can be optimally adapted to individual requirements in the form of a customized variant. The new concept, which received the Modulization Readiness Award in 2016, means that Mediseal can significantly reduce delivery times for the equipment in comparison with those the market is used to. The company gives its customers shorter delivery times – along with faster time-to-market for new products.
SAY HI TO
HIGH-SPEED-PACKAGING

At interpack and at FCE Pharma, Mediseal is presenting its new P5000 high-speed cartoning machine for the first time. Thanks to its wide range of formats it ensures maximum output even with large sizes: up to 500 cartons per minute!

“Always the highest quality - and always at full speed!” This is how Mediseal introduces its new P5000 high-speed cartoner. “For our customers, speed and quality count”, explains Borja Guerra, who has worldwide responsibility at Mediseal for sales and marketing. “With the P5000 cartoner we offer our customers a genuine high-speed product for secondary packaging.” In tried-and-tested Mediseal quality, because its development was based on the platform and components of the established P3200 cartoner.

Everything on the P5000 cartoner is geared towards productivity. The width adjustment of the product stack transport and the carton height adjustment are automatic, enabling a fast format change. All areas of the cartoner are easily accessible for the operator and can be cleaned quickly when the product changes. The product infeed can be swiveled out of the machine completely and facilitates quick format changes and trouble-shooting. The established design of the hinged functional elements on the P3200 cartoner has been retained. The extensive format range covers dimensions up to 150 x 110 x 200 mm, with 180 mm separation. And at a 120 mm separation the unit can reliably fill up to 500 cartons per minute.

The P5000 cartoner is optimally matched to the upstream blister machines – for dependable high output. “Now we are offering a complete solution from a single source in the high-speed range too”, says Guerra. “And what if product requirements change in the future? Then the P5000 can be adapted at any time, just like our other machines. This is the advantage of our modular approach.”

.ALL ALONG THE LINE –
PERFECT Serialization
AND AGGREGATION

From the Drug Supply Chain Security Act to the European Falsified Medicine Directive, international and national legislators are getting serious about the labelling and tracking of pharmaceutical products. New national requirements for serialization and aggregation are expected over the coming months and years. That’s why there is more demand than ever for flexible track & trace solutions focusing customers’ needs.

An end-to-end digital product pedigree (ePedigree) guarantees the reliable traceability of pharmaceutical products. This means that the risks resulting from product counterfeiting or grey marketing can be reliably excluded. Serialization and aggregation in line with guidelines play an important role in this context at individual packaging level. In concrete terms this means: for individual packaging, bundled packaging, cases and pallets.

The serialization of individual packaging items in the packaging line is a particularly challenging task that is handled with ease by the Seidenader ItemUnit. Depending on the regulations, for example, in addition to batch-specific information in plain text, such as batch number, production ID number (GTIN), expiration date, and a random, unique serial number, a DataMatrix code containing all the information mentioned above is printed on the box. Both plain text and DataMatrix code are checked for content, print quality and information conformity.

Once again in line with the regulations, the continued packaging line includes the aggregation of the serialized individual packages: these are first grouped together as bundles. The serial numbers of all items in a bundle are registered. A serialized bundle label is then printed and applied. Lastly, the item serial numbers within the bundle are linked to the serial number of the bundle itself.

The same procedure is repeated – as necessary – both on the cases packaging level and, at the end of the packaging line, on pallet level. This makes it possible to trace the content on every packaging level in the supply chain – right back to individual boxes – to the respective manufacturer. This can reliably prevent fake products from reaching the market.

With this track & trace solution Seidenader ensures reliable labelling and tracking at every level of aggregation in pharmaceutical packaging. Consulting, software and hardware – Seidenader offers it all from a single source.

Further information:
www.mediseal.de/p5000

FURTHER SOLUTIONS
FROM MEDIPAK SYSTEMS

Werum’s PAS-X Track & Trace Solution: offers functionalities for serialization and aggregation within the packaging process, integrating ERP and Global Repository with the packaging lines and Line Controllers
Offline serialization by Rondo: Codes are embedded into the print layout and folding boxes are produced with the in-process method
It doesn’t have to be Glybera – probably the most expensive drug in the world at over $50,000 per container. Many other pharmaceuticals are just as cost-intensive in production, so that any quality deficiency has a negative impact on productivity. It can be particularly annoying when the product itself is faultless, but must nevertheless be discarded during final inspection, because the container is defective. So why not simply inspect the glass containers before filling them?

Seidenader is now presenting a completely new solution at interpack: the newly developed camera system for empty glass bottom inspection is based on a brand new type of empty glass lens in combination with prescription-controlled camera lens positioning. This enables a much better image quality to be achieved. At the same time it reduces distortion at the edges of the camera image. It is thus possible to inspect empty glass vials for damage and contamination using a single camera that has been optimized for every format size and shape.

The compact design of the new empty glass inspection system is intended for integration in filling lines in clean rooms or under an isolator. This is how it ensures that the precious product is only filled in perfect quality vials. Output is automatically increased as a result, so that the investment will practically pay for itself.
“The path is the goal.” – This ancient Chinese saying of Confucius also applies to the path to the machine, at least when it comes to feeding systems for automated container inspection. That’s because in high-speed inspection machines the maximum feed rate can represent a potential limiting factor. When the containers in question are delicate glass syringes, this is a job for DE.SY.RE.

The completely newly conceived DE.SY.RE handling system, presented by Seidenader as a highlight at interpack, complements the inspection machine with two modules: a de-nester before and a re-nester after the inspection machine. Perfectly coordinated with one another, the three components form a powerful integrated overall solution: A high-speed, high-precision delta robot in the de-nester supplies the inspection machine with up to 600 containers per minute. An identical robot in the re-nester removes the syringes again after inspection. What counts here is not only the high speed with which the robots work, but also their extreme precision. Thus, in particular, so-called “non-glass-to-glass contact” is ensured. This makes it impossible for the delicate glass containers to jostle one another or even to touch during feeding.

The key to this high-speed, high-precision process is the many years of expertise in inspection that Seidenader has poured into the development of DE.SY.RE. This guarantees a feeding solution that is perfectly tailored to the inspection machine and the respective requirements on the one hand. On the other hand, the combination of inspection machine and feeding system also means there are no interfaces with third party providers – thus ensuring a turnkey overall solution that offers the best inspection results.

DE.SY.RE – THE NEW HANDLING SYSTEM FOR PERFECT INSPECTION RESULTS

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“Experience the new handling system from Seidenader live for the first time at interpack – for more information go to www.desyre.seidenader.com”
Vertical integration is a fundamental condition for the implementation of numerous Industrie 4.0 solutions. It means, among other things, the creation of a standardized interface between the machines on the shop floor and the customer’s production management system. Vertical integration is therefore an important aspect of the Industrie 4.0 initiative by Medipak Systems, which involves creating fully networked industrial production using the latest information and communications technology.

Werum IT Solutions is currently working with teams from Dividella, Mediseal and Seidenader, as well as the partner ABB, on a new integration concept. The IT company is also collaborating closely with organizations such as the ISPE, in which customers and other providers are represented. The goal is to jointly develop a new industry standard in the regulated environment.

Similarly to the connection of an electronic device via a USB interface, it should be possible in future to link a line, system or machine such as a packaging machine to the network, simply and straightforwardly. Werum’s “PAS-X” MES software, as the manufacturing execution system, then detects the precise type of machine, calls up all relevant information from the equipment and uses it, for example, for master batch records (MBR) and electronic batch recording (EBR). On the basis of new technologies which are emerging for instance with OPC-UA, communication between systems in production and software functions at the production management level is being redefined from tag-based to message-based communication. The new message-based interface facilitates the secure exchange of structured information with the systems, regardless of whether this is the OEE data on a packaging machine, the Track & Trace data for a line management system or EBR data from a granulator or DCS system.

For our customers in the pharma and biotech industry the concept offers significant benefits: costs and complexity are reduced. The engineering and qualification costs for integrating a new machine into the production network are substantially lower. It is also important in the regulated industry, for example in the case of change over to a different medicine, for all process steps to be documented in an accurate way. This previously took an enormous amount of time. With a standardized interface between the machines and the production management system, such changes can be made more quickly and more efficiently.

Werum IT Solutions, Dividella, Mediseal and Seidenader are working on a solution for structured data exchange between the production management software (Level 3) and the equipment in a pharmaceutical plant (Level 2). “Plug & Produce” is the Medipak Systems vision for a new industry standard which we would like to present to you today!

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Open Platform Communication
Unified Architecture (OPC UA)

OPC-UA is an industrial machine-to-machine communication protocol. As the latest of all OPC specifications from the OPC Foundation, OPC-UA differs considerably from its predecessors, particularly in its ability not only to transport machine data (control variables, measured values, parameters, etc.) securely, but also to describe it semantically in a machine-readable manner.

Tag-Based Communication

Information is written as individual values on tags (data points in the controls) and read by tags. The validity of the data depends on the states of the systems. Guaranteeing secure transmission between IT systems and equipment (vertical integration) involves high costs and may have effects on system performance.

Message-Based Communication

Messages are structured information, assembled at the time of validity and exchanged as a message between transmitter and receiver.

Further information on our website:
www.plugproduce.com
PHARMA 4.0 – SIMPLY CONNECTED

Smart Packaging – Consumer & Production
Smart packaging takes product personalization and product security to a new level. It concerns both communication of the pack with the patient and communication with the machines in the production process. In addition to the actual product, consumers have the possibility of requesting additional services via the packaging. Within production, the pack communicates with the packaging machine and, for example, controls settings for individual, personalized products. At the same time, smart packaging increases the safety of products by incorporating tamper evidence or traceability or by recording harmful fluctuations in temperature affecting the product.

Plug & Produce
Vertical integration, i.e. the creation of a standardized interface between machines in production and the production control system, is a fundamental prerequisite for implementing numerous Industrie 4.0 solutions. Our vision is called Plug & Produce. Like connecting an electronic device via a USB interface, it should be possible in the future to link a line, a system or a machine such as a packaging machine to the network, simply and straightforwardly. The advantage for the customer: costs and complexity in pharma production are reduced.

Smart Device
Control devices are a key window into the machine or system. A smart mobile device enables machine operators or production managers to operate and monitor the machine or system, even remotely. Because Industrie 4.0 does not mean that intelligent production components take over everything, interaction with systems will change, because the tasks of operators are changing. The emphasis is no longer on the production facility and production monitoring of a fixed machine, for a defined product, in a fixed location. Planning, coordination, and communication, often for several production units at the same time, are occupying center stage. By means of the mobile, “extended” HMI, the machine operator gains significant freedom of movement can perform tasks more efficiently, resulting in higher quality. Our solution, which is based on HTML 5, is compatible with all systems and enables customers to use the mobile terminal of their choice.

Enterprise Manufacturing Intelligence (EMI)
The deployment of EMI “translates” production data into usable information for decision-making. Structured and unstructured information from many different sources within the company are collected and evaluated centrally. Intelligent evaluation of the data facilitates real-time analyses, standard reports and investigative analyses. The benefit: the customer can make well-founded decisions which improve process stability and process efficiency, thereby increasing product quality and productivity. Production can be supervised in virtually real-time and can be continuously verified.

Condition Monitoring & Predictive Analytics
Moving from reactive maintenance to predictive maintenance demands that one is not able not only to collect data in real time but also to interpret it meaningfully. The status of machines is recorded using sensor technology and automatically checked against templates which indicate a possible fault. To this end we apply concepts such as data mining, data modelling or machine learning. The benefit: critical incidents are detected long before they occur and appropriate measures can be taken. Machine availability and OEE are significantly improved.
HOW PACKAGING WORKS TODAY

Product identification, protection from counterfeiting, variants and cost reduction – these topics are a concern for our customers in the pharma industry as they develop and refine secondary packaging. What features does packaging have to possess to serve these requirements? And what happens in terms of machinability when the packaging subsequently travels through the machines? These are questions to which Dividella and Rondo have the answers for their customers.

In the development of secondary packaging, pharma and biotech companies repeatedly have similar requirements concerning the characteristics of their packaging.

**Packaging must feature high usability**

Packaging should be user-friendly. It must take into consideration both the possibly limited motor functions of end users, for example because of age or an illness such as rheumatism, and the protection of contents from access by children.

**Attractive design for the brand image and for communicating added value**

In addition, packaging should be attractive and adequately convey the brand promise of the company and the product. At the same time it should be able to be used for communicating added-value to the end user, for example by means of new technical features such as augmented reality.

In the following, we shall give a short overview of three solutions which were developed by the cooperation of Dividella and Rondo for our customers.

1. **SMART PACKAGING**

   **NFC-CODE/AUGMENTED REALITY: SIMPLY SMART: THE COMMUNICATIVE FOLDING BOX**

   Smart Packaging is finding its way into people’s everyday lives. Pharma manufacturers too are interested in new ways to enable direct communication with the patient and to improve communication between the patient, the physician and the pharmacy. Rondo incorporates a NFC chip (Near Field Communication) or hidden information directly into the packaging. This information can be read with smartphone apps. From reading out the enclosed leaflet to augmented reality: the possible applications are manifold.

2. **CAREP’AK: CHILDPROOF TILL THE LAST TABLET IS REMOVED**

   CAREP’AK is a new kind of childproof blister packaging of solid products. Solids can be pressed out from the packaging only if a safety mechanism is operated. This mechanism must be operated when each product is removed. Unlike customary childproof systems, which often protect the carton from children before it is opened, the CAREP’AK is safe until the last product is removed.

3. **DESIGN**

   **PRODUCT PROTECTION**

   **FLIGHTSAFE/COMPACTPEN: MAXIMUM PRODUCT SAFETY, MINIMUM VOLUME**

   For reduced space requirements and transportation costs, Dividella opts for monomaterial packaging which consists of 100 percent recyclable cardboard material. 25 to 50 percent volume savings compared with conventional blister packs have already been able to be achieved. This pays off particularly with highly sensitive medicines which have to be consistently cooled from production, through transportation to application. Dividella’s design concept: flutes adapted to the products retain them securely within the pack, without touching the bottom and lid – they are virtually free-floating. Several products can be packaged close to each other, with extremely high impact resistance. Different products such as vials, ampules, injectors, accessories such as needles, filters and others can be inserted into combination packs.
Fargo Automation from the USA has been part of Medipak Systems since January 2017. The company, which specialises in equipment for syringe handling, horizontal deep draw blister machines, inline printing, top-load cartoners and customized packaging solutions, extends the technology portfolio for the pharmaceutical and medical devices sector. We would like to introduce you to this innovative company from Fargo, North Dakota, and outline the opportunities which arise from this new cooperation within the Medipak Systems Group.

PHARMA EXPERTISE

Enhanced and extended
Fargo Automation fits like a glove within the existing range of services offered by the Medipak Systems Group. It has expertise in the sphere of packaging solutions for medical devices, complementing the portfolios of Mediseal and Dividella. In terms of inspection and packaging machines, it complements the offerings from Dividella, Mediseal and Seidenader. For example, Fargo Automation’s syringe handling system enables our customers to assemble integrated total solutions for the inspection and packaging of syringes. Integration of the individual machines into a complete line from a single source guarantees reliable and efficient processes.

GROWING TOGETHER

Solutions from a single source
With the integration of Fargo Automation, Medipak Systems is strengthening its claim as a provider of integrated solutions. Customers from the pharma and biotech industry will benefit from extended capacities in terms of engineering and process consultation. “We complement each other perfectly and will exploit sustainable growth opportunities with our common customer base. In addition to continuing and further developing Fargo Automation’s existing business, the goal is jointly to provide customers with new and unique products and even more solutions from a single source”, says Clemens Berger, CEO of Körber Medipak Systems.

A STRONG LOCAL PRESENCE

Preserving the brand, developing the location
Within the organisation, Fargo Automation will be integrated into the activities of Körber Medipak Systems NA Inc., the sales and service centre for North American markets. The name Fargo Automation will remain as a brand – with its excellent reputation in the pharma market. The site in Fargo will be further expanded as a production and development facility for Medipak Systems. It is optimally equipped for future growth, has modern plant with highly motivated, trained workers and also has access to talented engineers and machine builders via the local university.
The Chinese market for pharmaceutical products is a growing market with great potential for pharmaceutical manufacturers and their suppliers. The market imposes quite specific requirements on participants. What is in demand is not individual technical solutions but holistic concepts which require extensive knowledge of processes as well as knowledge of the local and international industry, in addition to expertise with machines.

However, Chinese manufacturers expect from their suppliers not only expertise and advice but also a local presence, plus local provision of service and a local supply of spare parts. An understanding of the local (business) culture and appropriate conduct are also valued, as is the authentic introduction of one’s own identity and values.

**Local presence makes the difference**

Solutions which really work have to take into account the global requirements of the pharma market, but at the same time they have to meet the needs of the local pharma industry. Medipak Systems is convinced: such solutions can be created only by getting close to the customer. And this includes geographical proximity in particular. This is why we have for many years focused on a growing international presence in established and growing markets. China is one of the most important markets of the future.

**Together in one location**

At the new location, colleagues of Medipak Systems companies will be working together. In combination with our local partners, we can offer our customers the machinery and engineering know-how of Dividella, Mediseal, Fargo Automation and Seidenader plus the IT and process expertise of Werum IT Solutions. The well-trained local employees know and understand the special requirements and expectations which Chinese customers place on us. They speak their language and are easy to contact. They also receive the reliable support of experts from Europe and the USA.

**Tailor-made solutions for China**

Körber Medipak Systems Shanghai bundles our knowledge of machinery, engineering, IT and processes and supplies its customers with GMP-compliant integrated solutions tailor-made for the local pharma industry and from a single source. Medipak Systems covers all the links in the automation and process chain, a unique offering on the market, both horizontally and vertically. They are buying not just a product, but solutions which can improve processes and lower costs. Customers benefit from short response and delivery times and from local service provision.

**A strong team on-site**

Nicola Vella (Chairman of the Board), Olivier Néron (Senior Vice President China Operations), Yunfan Zho (General Manager) and the sales team with Peter Grotjahn, Frank Xu, Ell Yang and Selwyn He will support our customers. Experienced service technicians and Vivian Yu and Helen Liu (back office) complete the growing team. Within five years we want to double the number of employees. The focus continues to be on sales and service, complemented by local project management and engineering. Sales and warehousing of spare parts and expansion of the service portfolio are also envisaged.
**AWARDS**

**MENTIONED WITH DISTINCTION**

- **BAYER SUPPLIER AWARD**
  - “Innovation” category
  - For a new design of primary and secondary packing, developed in close co-operation with Bayer Pharma
- **MODULARIZATION READINESS AWARD**
  - 3rd place
  - For the systematic implementation of a modular approach to the development of its packaging machinery

**OUTSTANDING SOLUTIONS**

- **MEDISEAL**
  - **OUTSTANDING SOLUTIONS**
  - **WINNER**
  - For a new design of primary and secondary packing, developed in close co-operation with Bayer Pharma

**INNOVATION**

- **WERUM IT SOLUTIONS**
  - **ASIAN MANUFACTURING AWARD**
    - “Best Pharma Solutions Provider” category
    - For its innovations and the ongoing development of the PAS-X Manufacturing Execution System

- **DIVIDELLA**
  - **WORLD PACKAGING ORGANISATION: SUSTAINABILITY COMPETITION**
    - Bronze medal in the “Sustainability” category
    - Together with Sanofi Pasteur
    - For the syringe packaging for a flu vaccine
  - **WORLDSTAR AWARD**
    - “Pharmaceutical & Medical” category
    - Together with Sanofi Pasteur
    - For the syringe packaging for a flu vaccine
  - **AMERISTAR PACKAGE AWARDS COMPETITION**
    - “Drug & Pharmaceutical” category
    - Together with Sanofi Pasteur
    - For the syringe packaging for a flu vaccine

**FINALIST**

- **RONDO**
  - **GERMAN PACKAGING AWARD**
    - “Functionality and Convenience” category
    - Together with UCB Pharma
    - For the packaging concept of the Cimzia® drug
  - **SILVERPACK AWARD**
    - Mentioned with distinction as “Polite Packaging”
    - Together with UCB Pharma
    - For the secondary packaging of the Cimzia® drug
  - **PRO CARTON ECMA AWARD**
    - Finalist in the “Healthcare & Pharmaceuticals” category
    - Together with H. Lundbeck & Otsuka
    - For the packaging solution for the Abilify Maintena drug
  - **SWISS PACKAGING AWARD 2016**
    - Nominated for the audience award in the “Construction” category
    - Together with F. Hoffmann-La Roche
    - For the development of the “Multipack” (Safepack) impact- and vibration-proof packaging

- **PRO CARTON ECMA AWARD**
  - Finalist in the “Healthcare & Pharmaceuticals” category
  - Together with F. Hoffmann-La Roche
  - For the packaging concept of the Cimzia® drug

- **HCPC EUROPE COLUMBUS AWARD**
  - Together with UCB Pharma
  - For the secondary packaging of the Cimzia® drug

- **PRO CARTON ECMA AWARD**
  - Finalist in the “Healthcare & Pharmaceuticals” category
  - Together with F. Hoffmann-La Roche
  - For the development of “Multipack” (Safepack) impact- and vibration-proof packaging
What it means for us …

We are 100% focused on the pharma and biotech industry and we work for our customers throughout the world.

What it means for us …

each of our companies is an expert in its own area and delivers spot-on solutions.

What it means for us …

we combine our technologies and know-how in a way which creates the greatest possible benefit for our customers.