

WHAT'S NEXT?



FETTE
COMPACTING



A member of
Excellence United

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LIFETIME EFFICIENCY

Discovering untapped potential

SENSOR TECHNOLOGY FOR CAPSULES

In free fall

P SERIES

Making a good thing even better



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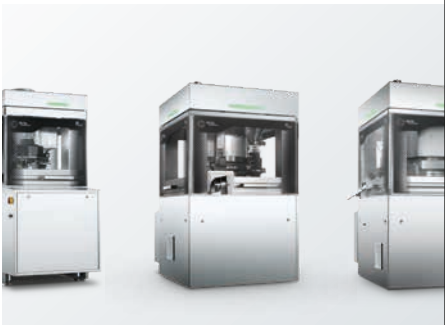
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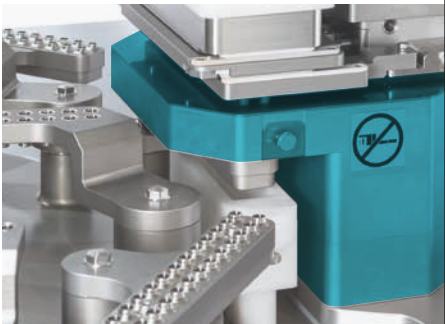
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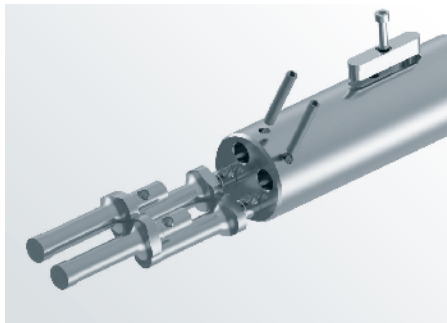
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DEAR READERS,

The pharmaceutical industry is by no means missing out on digitalization, as often claimed. On the contrary: our customers work ceaselessly to further connect their production facilities. Manufacturers use digital tools which ensure more flexible production as well as increased productivity and precision. Machines, data, and producer know-how merge in their complex entirety.

We focus on this entirety, whereby we have already detected some astounding potentials for some customers. We call it “Lifetime Efficiency”. And it entails using data to track specific efficiency reserves by including all technical, process-related and human factors. In this issue of “What’s Next?”, you can read about how Lifetime Efficiency works in practice. We present a real example in which we discovered savings potentials of several millions.

The fact that efficiency in the production of solid products can be improved in many different ways is also explained in the latest user stories and reports. I hope you have an inspiring read!

Yours sincerely
Olaf J. Müller
CEO LMT Group
Division President Fette Compacting



TECHNOLOGY stands for everything we offer in production technology – from tablet presses and capsule filling machines through process equipment to tableting tools and format parts.

SERVICE covers all the services related to machines, process equipment and installations such as spare parts supply, plant modernization and technical field service department.

COMPETENCE is the overarching idea behind all our process-related services. This includes training, product trials, application and Performance Consulting as well as engineering.

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FOCUSING ON THE POTENTIAL INSTEAD OF THE PROBLEM



Lars Plüschau, Director Global Customer Support at Fette Compacting (left)
Rainer Krugmann, Global Director Sales at Fette Compacting

Even proven production processes still hide some untapped potential. In the form of Lifetime Efficiency, Fette Compacting has developed an approach which enables pharmaceuticals companies to release hidden efficiency reserves. Rainer Krugmann and Lars Plüschau explain how this works.

Mr. Krugmann, Mr. Plüschau, what is the main idea behind Lifetime Efficiency?

Rainer Krugmann: The idea is that we work with our customers to discover their untapped potentials. We not only examine whether machinery is running but also extend our focus to include the entire life cycle of their plants and products to increase efficiency – hence Lifetime Efficiency.

Lars Plüschau: We want to support customers by offering them comprehensive analyses of their solid formulation production and systematically improving their processes. This represents a change in perspective – focusing on the potential instead of the problem. Potentials lead to concrete solutions and gain even closer loyalty of customers.

What specific changes are there for customers?

Rainer Krugmann: Collaboration with customers used to concentrate on handling problems and requirements. But that is not the type of partnership we strive towards with Lifetime Efficiency. Now, we collaborate on site much more intensively, talking to everyone involved, and taking a very close look at promising areas. Only this way can we find savings potentials which are truly extensive, whereby we rely on experience gleaned from thousands of installations worldwide.



AS THE INTERPLAY BY INFLUENTIAL FACTORS IS SO COMPLEX, THE LIFETIME EFFICIENCY SYSTEM IS ENORMOUSLY HELPFUL. SOMETIMES WE ARE EVEN SURPRISED AT THE EXTENT OF SAVINGS POTENTIAL.

Rainer Krugmann

Rainer Krugmann: As the interplay of influential factors is so complex, the Lifetime Efficiency system is enormously helpful. Sometimes we are even surprised of the extent of savings potential which can, in fact, reach the tens of millions.

Does this oblige manufacturers to disclose their entire operations?

Lars Plüschau: Not at all. But we cannot progress without machine and process data. The customer decides on the extent of disclosure. The greater the trust, the sooner the customer involves us, and the longer he retains our support, the more he will benefit in the end – in terms of both money and time saved.

Who can utilize Lifetime Efficiency?

Lars Plüschau: Anyone. This new type of cooperation is open to all customers. What is important is that they develop an awareness of how high the value-added potential can actually be in production. This awareness has increased markedly among many of our customers.

Rainer Krugmann: This is equally applicable for researching pharmaceuticals manufacturers and producers of generic drugs. Originators count on maximum production reliability and quality accompanied by minimum product loss which is what Lifetime Efficiency is based on. Producers of generic products are driven by reducing the costs per tablet or capsule – areas which also harbor significant potentials.

And what changes does this mean for Fette Compacting?

Rainer Krugmann: We intensify our already close collaboration between Sales and Service as well as improve coordination of our customer management. As a team, we are now capable of swiftly detecting where our customers can achieve the highest savings. This skill improves with each new and individual case.



WE TALK TO THE SHOP FLOOR AND TOP MANAGEMENT IN AN EFFORT TO OBTAIN AN OVERALL PICTURE. THIS ENABLES US TO RELIABLY DETECT THE POTENTIALS AND PROVIDE SPECIFIC PROPOSALS FOR SOLUTIONS.

Lars Plüschau

DOUBLE FORESIGHT

Lifetime Efficiency at Fette Compacting focuses on a new manner of collaboration with customers. It is based on an analysis of the entire machine park. Just how well this works is demonstrated by an international pharmaceutical company where data-supported scenarios have already revealed an optimization potential of several millions.

Lifetime Efficiency is double foresight: firstly, it opens our eyes for the entire life cycle of a plant. From development through production to modernization, individual solutions are tailored exactly to requirements during the respective life phases. Secondly, it expands our focus to include the entire production network, across several locations. This approach is similar to fleet management as practiced in other sectors.

Fette Compacting has already demonstrated the potential of this approach for a pharmaceutical manufacturer operating worldwide. "In order to apply the approach at the beginning of the life cycle, we collaborated with the customer to draw up specifications", explains Martin Davies, Global Account Manager at Fette Compacting. "On the basis of the bundled requirements, the company can control new investments centrally and implement them even faster."

At the same time, the manufacturer is open to an extensive analysis at key locations in an effort to obtain an overall image of his tableting performance. In this process, Fette Compacting examined various scenarios based on real production volumes and performance parameters. "There were three target scenarios", summarizes Davies. "First of all, we calculated the possible changeover reduction using existing equipment. Then we replaced the individual machines with comparable new models and planned process optimization and training programs for the operators. The third step entailed a comprehensive redesign of the fleet."

Less is more ... much more

The scenarios led to some very surprising results: for example, it would have been possible at one location to almost halve the number of tablet presses if the customer were to upgrade from an older series to smaller models in the FE Series. The high-performance rotary presses which are also easier to clean and refit would reduce overall downtimes in the factory to one tenth. This calculation is confirmed by an in-house study carried out by the customer.

The Lifetime Efficiency scenario also revealed a high savings potential in the area of product losses: "Particularly in the area of expensive special medication, minimizing product loss promised potentials of several millions", according to Davies. "The long service life displayed by tablet presses often means that a customer's machine park was originally installed for an entirely different product mix. This is something which is often overlooked by in-house optimization teams."



MINIMIZING PRODUCT LOSS PROMISED POTENTIALS OF SEVERAL MILLIONS.

Martin Davies, Global Account Manager at Fette Compacting

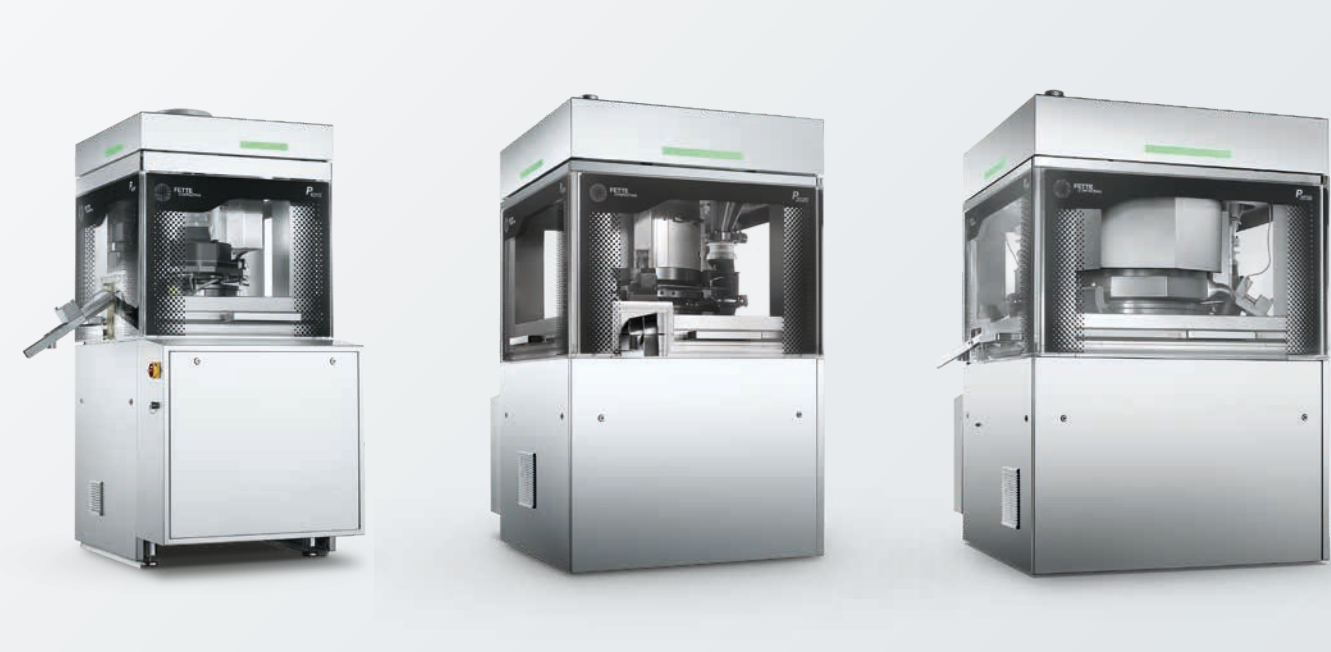
Intensified collaboration

Achieving savings potentials of several millions as in this particular case demands intensive collaboration. Davies is fully satisfied with the teamwork to date: "We implemented the analysis along with our close support on site. Our customer contacts all hold key functions. This way we could always find the right approach and put our teams together in the interdisciplinary compilation that was needed."

The fact that such cross-departmental collaboration works is also demonstrated by two new sub-projects, according to Davies: "On the one hand, we will provide support in transforming the location in an effort to minimize the efforts involved in validating machine changes. On the other hand, we will draw up a road map for control upgrades to optimize the remainder of the fleet."



MAKING A GOOD THING EVEN BETTER



With its fully revised P Series, Fette Compacting China in Nanjing is now embarking on the next chapter of its bestseller. Each of the three machines in the series has been renewed both optically and technically. And several additional features ensure that high-quality products can now be manufactured even more efficiently.

A new look for a successful model: Fette Compacting China has thoroughly revised the tablet presses in its P Series and launched the P1010, P2020 and P3030 featuring a new look and improved technical features. With distinctive lines, clear structures and more high-quality materials, the tablet presses are now presented in the typical Fette Compacting design. “We have given the P Series a full facelift”, explains Tina Zhang, Corporate Marketing and GMO Manager at Fette Compacting China. “With these improved machines, we can now offer our customers significantly more value at an unchanged price.”

The new technical features have the aim of increasing value added in customers’ production facilities. These include an entirely revised terminal made of corrosion-resistant stainless steel, an optimized dust extraction system, and improved integration of process equipment such as vertical dedusters and weightmaster. The new P Series also incorporates additional software functions which facilitate finetuning of production by manufacturers “Thanks

to the new functions of the P Series, customers can continuously improve their tablet quality”, explains Rui Geng, Head of R&D and Product Management at Fette Compacting China. “As we have improved integration of the process equipment in machine functions, some process steps now run automatically. This reduces personnel costs while improving the quality of the end product”, says Geng.

The tablet presses in the P Series are standardized but can be tailored very specifically to situations on site thanks to a wide variety of technical options and an extensive range of process equipment. Up to 200 different versions are possible. Accordingly, Fette Compacting China took the revision of the P Series as an opportunity to design the range in such a way as to make it more comprehensive for customers. “The facelift enabled us to group the 40 most popular options as practical packages classified by technical and user-specific factors”, explains Geng. “This made it possible to reduce complexity and create attractive offers for our customers.”

Introduction to high-quality production

Soon after its début in 2004, the P Series evolved to become a bestseller. The machines meet the complex demands of cGMP, can be operated intuitively, and permit flexible production as well as swift format changes.

High product quality, manageable procurement costs, distinctive customizability and short delivery times of 2-3 months made the machines attractive for a certain group of buyers, explains Jack Deng, Sales Director at Fette Compacting China. “The P Series is primarily used by pharmaceutical and nutrition producers looking for high-quality machinery but who initially have a relatively lean budget.”

The P Series is deployed mainly in emerging pharmaceutical markets in Asia, Latin and Central America, the Middle East, Africa, Russia, and Eastern Europe where it facilitates market entry for many pharmaceutical companies to high-quality tablet production. “Normally, customers purchasing machines from the P Series grow very swiftly. Especially as they attach major importance to the quality of their products”, adds Tina Zhang.

This is why the P Series is enjoying increasing popularity throughout the world. In growing markets for nutrition supplements in particular, more and more manufacturers are relying on the proven high product quality offered by these machines, both in Asia and in the US and Europe. “The fact that quality is gaining importance for pharmaceutical and nutrition markets is an advantage for our P Series”, according to Dr. Andreas Risch, Managing Director at Fette Compacting China. “After all, we supply outstanding, efficient and reasonably-priced machines which represent an optimal investment for cost-conscious customers. And this claim is underlined by our new facelifted models.”



INTENSIFIED COLLABORATION



Andrés García, Managing Director at Fette Compacting Mexico

Within only a few years, Fette Compacting Mexico has developed an intensive collaboration with the Mexican pharmaceutical company PiSA Farmacéutica. Implementation of two complete high-containment plants now also incorporates the alliance partners of Excellence United.

State-of-the-art technology and top service can generate extensive trust within only a few years. This is demonstrated by the intensive collaboration which is meanwhile maintained by the pharmaceutical company PiSA Farmacéutica and Fette Compacting Mexico.

In summer 2014, Fette Compacting established a subsidiary in Mexico with the goal of displaying even more presence for its customers in this growing market. Management was assumed by a familiar figure: Andrés García. As a former sales employee, he was already well-known to many Mexican customers with whom he had built a trusting relationship over the years.

The period leading up to establishment of Fette Compacting Mexico was also marked by initial collaboration with PiSA Farmacéutica which produces and distributes pharmaceutical products in the areas of anesthesiology and intensive medicine as well as prescription drugs. “We have been collaborating with PiSA since 2011”, claims García. “Back then, we supplied two 2200i tablet presses. Although we did not have our own subsidiary in Mexico at the time, this initial contact laid the foundations for intensive cooperation in the years to follow.”

Excellent service
June 2014 saw Fette Compacting Mexico exhibiting at the EXPO PACK Mexico trade fair. A PiSA representative was very much taken by the offer and opted for two FE35 tablet presses. As PiSA manufactures around 90 different pharmaceutical products in total, decisive criteria were represented by flexible production, short conversion times and the high plant availability of the FE35. Presentation of fast and easy conversion of the FE35 demonstrated by employees of Fette Compacting directly at the trade fair stand was particularly impressive. PiSA commissioned a further nine FE Series tablet presses in February 2015.

The excellent technical quality of the machines was not the sole clincher. The outstanding service offered by Fette Compacting was particularly convincing right from the start: “We were on the lookout for reliable machines offered by a supplier also offering an extensive range of services and maintenance” reports Edilberto Sandoval – Maintenance Manager at Solids Plant in Tlajomulco. “What has made Fette Compacting such a valuable partner is not only the modern and ultra-precise technology but rather the excellent service offered in the form of machine support.”

Round-the-clock availability
Above all else, excellent service means short response times and permanent availability. When problems arise with a machine, a team of technicians is on hand immediately to remedy the fault. The service team is available around the clock and is also on call over the weekend. And the topic of training also plays a key role: García and his team ensure that PiSA employees are trained on new machines and always capable of operating them with maximum efficiency.

Confidence in the technology and service offered by Fette Compacting is also reflected in the figures: since collaboration began, Fette Compacting Mexico has delivered a total of 17 tablet presses to PiSA, 12 FE Series machines and five from the i Series.



Everything from a single source
“I assume that our collaboration will continue to intensify in the years to come”, muses García. In fact, there are already some indications that this could be true. In August 2018, PiSA ordered two complete high-containment plants which Fette Compacting will realize along with its partners in the Excellence United alliance.

The plants will contain components from Glatt, Uhlmann and Fette Compacting, whereby the tableting specialist is acting as a key contact partner for the project as a whole. “If there are problems with one of the machines, PiSA always contacts us, even if the problem does not concern one of our tablet presses”, explains García.

Having one key point of contact for the entire project was a decisive factor for PiSA: “We were on the lookout for a reliable partner capable of taking charge of the entire process from production through packaging as well as supplying and supporting the entire plant from a single source”, says Jose Angel Santin – Engineering Director at Tlajomulco. “We found this partner in the form of Fette Compacting and the Excellence United alliance.”



THE LITTLE ONE ON THE BIG STAGE

Fast product changeover, intuitive operation and total process control: the FEC20 showed off its strengths atACHEMA 2018. Fette Compacting is pushing its FEC Series forward with the new capsule filling machine, transferring the innovative technology of the FEC40 to medium batch sizes of up to 200,000 capsules per hour.

A big stage for the little sister: in the summer of 2018 Fette Compacting presented the new FEC20 capsule filling machine at the leadingACHEMA trade fair in Frankfurt am Main. As the youngest family member of the FEC Series, it follows in the footsteps of the FEC40, with which Fette Compacting set new standards for capsule filling in 2016. As a double rotary press with numerous technological innovations, the output of the FEC40 – up to 400,000 capsules per hour – remains stunning.

For their second capsule filling machine, Fette Engineering’s engineers took up the technical concept of the FEC40 and optimized it for medium batch sizes of up to 200,000 capsules per hour. “Because we developed the FEC40 and the FEC20 on the basis of the same technological platform, the machines offer advantages when used together,” explains Jan-Eric Kruse, Managing Director at Fette Engineering. Technical compatibility is one of these advantages. Many of the same format parts are used in both the FEC20 and the FEC40, and these can be swapped between machines.

Focus on the operator
It is possible to control and monitor every step in the capsule filling process separately on both machines. The assemblies in capsule filling machines are typically controlled by mechanical couplings. The FEC Series, in contrast, uses servomotors and torque motors for each individual process step. “We define the optimum parameters for each process step, and in that way we improve both the quality and the output per unit time”, explains Kruse.

The FEC20 and FEC40 have also been thoroughly optimized for user-friendliness. The graphic human-machine interface appearing on its 19-inch touchscreen is reminiscent of the intuitive control of Fette Compacting’s FE Series. The equipment can be controlled effortlessly through the easily understandable user guidance.

Thanks to the patented extraction system for the filling punch stations, the manufacturer can change the dosing process, products and batches in the shortest possible time. “The filling stations can be dismantled and cleaned outside the machine, and that means that refitting and cleaning times can be shortened significantly,” adds Kruse. “So at any time the FEC20 is quickly back again, ready for operation.”

In connection with the strong market position of Fette Compacting, the innovative technology of the FEC Series will be used to successively build up market shares in the coming years, promises Kruse: “2019 will be the year in which we will transform from a strong development unit into a powerful sales organization.”



The FEC20 with the capsule control system FEQ20 atACHEMA.



Many of the same format parts are used in both the FEC20 and the FEC40.



Jan-Eric Kruse, Managing Director at Fette Engineering

THREE QUESTIONS FOR JAN-ERIC KRUSE

Mr. Kruse, in 2018, Fette Compacting launched its second capsule filling machine, the FEC20. What is so special about it?
The FEC20 can be regarded as a smaller version of the FEC40. Our capsule filling machine family has been extended. We used the innovative technology of the FEC40 which we also developed further in order to apply it to a machine for medium-sized batches of up to 200,000 capsules per hour.

What advantages are there of this technical affinity with the FEC40?
Although the FEC20 is a single rotary press while the FEC40 is a double rotary press, both machines are extremely compatible at technical level. Both capsule filling machines use the same format parts, facilitating exchanges between machines. When our customers use the FEC20 and FEC40 together, they can easily transfer components from one machine to the other.

What other advantages does the FEC20 offer customers?
One real advantage is the ergonomic and patented removal system for the tamping pin station which can be easily removed before being dismantled and cleaned outside the machine. Operators can also use pre-fitted tamping pin stations. Thanks to this technology, conversion and maintenance of the capsule filling machines are as easy as possible and they are ready for operation again within a short period of time.



Maximum efficiency: The FEC20 produces up to 200,000 capsules per hour.

IN FREE FALL

Weight measurement could not be more space-saving and precise: Together with visiotec, the inline control specialist from Uhlmann Pac-Systeme, Fette Compacting has developed the NMC sensor for the capsule filling machines of the FEC Series.

Fette Compacting uses numerous revolutionary technologies in the capsule filling machines of the FEC Series. These include the NMC sensor, which the company developed together with visiotec from Uhlmann Pac-Systeme. The special feature: The sensor records the weight of pellets as they fall. It measures milligrams in milliseconds – and in an entirely contactless manner, which is unique. The NMC sensor is fully integrated and can even record complex and dynamic processes ultra-precisely with a sampling rate of four Kilohertz.

Unlike a conventional weighing system, the NMC sensor requires significantly less space. It doesn't display any transient response and it delivers net measurements. This distinguishes it from standard scales which only deliver gross measurements, i.e. including the capsule shell.

The specialists of visiotec adapted the sensor perfectly to the capsule filling machines offered by Fette Compacting. Engineers at both companies cooperated on the proof of concept, integration in the existing FEC Series system and installation of the sensor.

Easy integration and high precision
The decisive factors in the development of the sensor entailed easy integration in the machine and a high degree of precision. Furthermore, it transpired at an early stage of collaboration that the sensor would need to be easily replaceable to guarantee a high degree of user friendliness, thereby facilitating cleaning of the machine, for example.

That is why it was equipped with a housing which is particularly suitable for pharmaceutical applications. The material, design and sealing concept prevent ingress by dust and particles while also ensuring that the sensor can be easily cleaned.

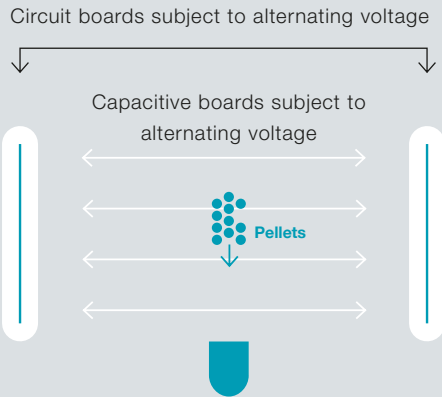


Net Mass Control (NMC) sensor for precise and efficient measurement of net weight of pellets.

Detail view FEC20 with one pellet station and one NMC sensor (highlighted)



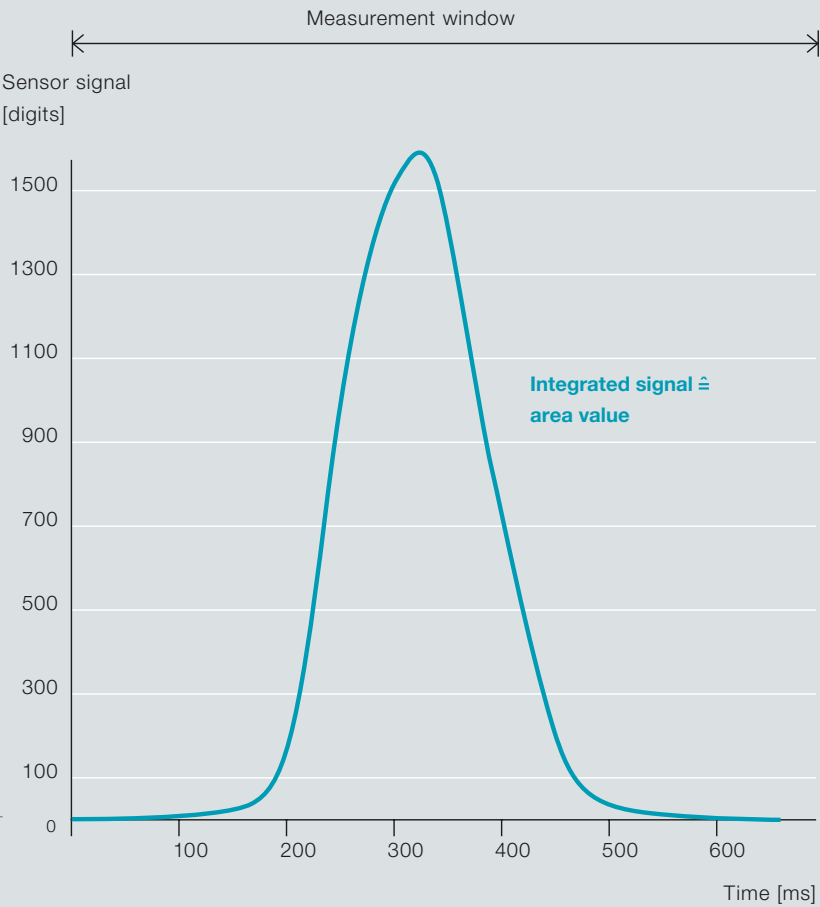
Measuring principle



The technology is based on a contactless capacitive measuring principle: pellets are moved through an electric measuring field. The sensor records the change of the field over time.

A signal-time curve results from the measurement. The integral of the area under this curve can be used to determine the exact metered quantity.

Signal-time curve



THE RIGHT MEASUREMENT STRATEGY

Those processing active or highly-active substances need to include containment plans for operator protection. In fact, the question is not whether but how much containment is necessary. Equipment needs to have the appropriate dimensions in order to keep investment costs low and secure a high degree of efficiency. But this is only possible with reliable data from exposure measurements which are the basis for assessment by plant planners and regulatory authorities. An ISPE symposium in May 2018 highlighted what is important for such measurements.

“There is no such thing as an entirely closed system”, is how Oliver Gottlieb from NNE Pharmaplan described the basic problem. He was one of the speakers at the ISPE symposium in the Fette Compacting Competence Center in Schwarzenbek. This symposium was marked by a particular anniversary as, ten years ago, the Community of Practice (CoP) Containment was established. It is part of the International Society for Pharmaceutical Engineering (ISPE) in the DACH region (Germany, Austria and Switzerland). Commitment by the CoP group headed by founder Richard Denk has contributed greatly to making the DACH region one of the most innovative locations for containment solutions today.

“Closed”, “totally closed” or “contained”?
When each system reveals critical areas and processes, Gottlieb claims it is all the more important to carry out reliable exposure measurements and choose the right equipment. This was also confirmed by the approx. 60 participants who nevertheless expressed some uncertainty concerning the numerous

definitions of containment. Depending on the supplier, plants can be “closed”, “totally closed” or “contained”. Accordingly, the CoP published a containment manual in 2015 as an initial step toward standardization. This manual is meanwhile regarded as a master document for processing highly-active substances.

The surrogate rush
“Lots of measurements do not necessarily mean good measurements”, is how Daniela Kovats from Excella GmbH summarizes the challenges associated with exposure measurements. Here too, there are a variety of approaches starting with the choice of the active substance surrogates: lactose, paracetamol, naproxen, D-mannitol – there is a wide variety to choose from. The expert recommends dusty naproxen for a worst-case scenario. It is good for measuring exposure as far as the background noises, i.e. as far as the background level of the room with the test substance. Kovats and other experts demonstrated the best measurement strategies and measurement points using tablet presses supplied by Fette Compacting.

Seven-step measurement method



1 Zero measurement
The background noise in the measuring room is established. This value can be used to better classify the subsequent test cycles.

2 Production
The operator sets up the tablet press and starts operation. The plant operates in normal mode for 30 minutes.

3 Entering and exiting
The operator feeds the punches and tools into the machine through the Rapid Transfer Port (RTP) and then uses the glove ports for changing the punches.

4 Fault condition test
The fault condition test simulates a power failure, whereby the emergency air management system takes over. The subsequent measurement takes 25 minutes.

5 Cleaning the interior
Using the glove ports, the operator cleans the press room interior and isolators if necessary.

6 Removing process equipment
The upward deduster and checkmaster are undocked. If a machine with isolator is measured, this step is eliminated.

7 Dismantling the Fill-O-Matic
The operator opens the window flaps and dismantles the Fill-O-Matic and the punches. The tablet press is wiped with a damp cloth.

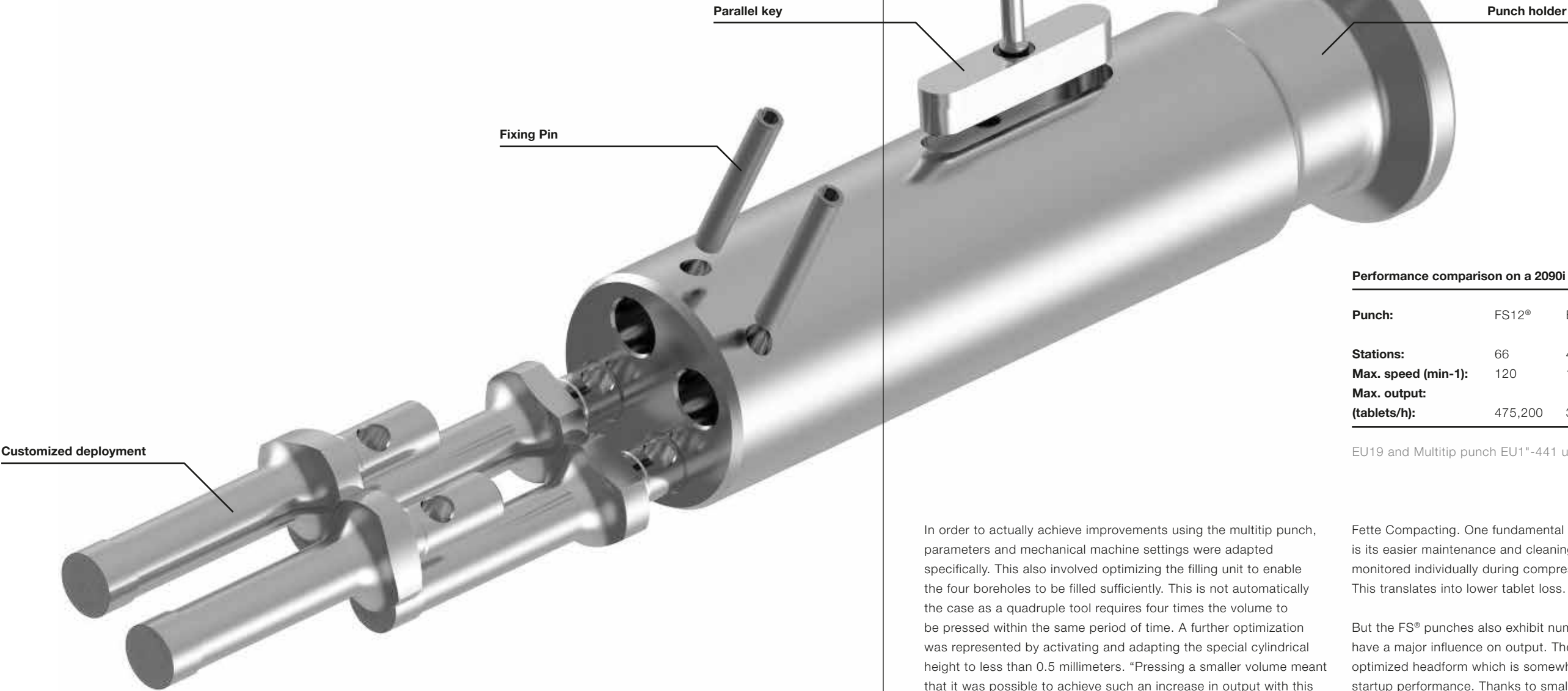


In the exposure measurements workshop, participants were able to examine close up where the key measurement points are and how measurement probes work.

Fast route to the right containment
Dr. Martin Schöler, Head of Engineering at Fette Compacting, presented the Containment Guard measurement process for tableting: “It adds further parameters to the existing measuring requirements in order to depict all of the tableting production conditions in an absolutely realistic manner”, claims Schöler. One advantage for users is the fact that they receive a certified reference for their conclusive risk assessment prior to commissioning. Using various increments oriented toward the OEB levels of the containment pyramid, users can swiftly and accurately discover what containment equipment is the right one for them. The measuring basis is formed by a seven-step method in which Fette Compacting tests plants of every conceivable configuration (see info box).



CONSULTING MAKES THE DIFFERENCE



An international manufacturer of pharmaceuticals wanted to quadruple output in the production of a drug from 100,000 to at least 400,000 tablets per hour. The most obvious solution seemed to be to convert to a multitip quadruple punch. The manufacturer turned to Performance Consulting offered by Fette Compacting and his expectations could even be exceeded by far: the customer actually succeeded in increasing the production volume to 700,000 tablets per hour. As demonstrated by the following example, not only the appropriate tableting tool needs to be selected – companies can only significantly increase output in combination with optimized machine settings and parameters. This requires comprehensive and sound consulting.

“A quadruple punch does not automatically mean quadruple output. This is a major misunderstanding which we try to clarify within the framework of consulting – and yet often exceed expectations all the same”, explains Performance Consultant Jochen Gaeth, who provided consulting services to the customer. The company had been using a 2090i tablet press from Fette Compacting for many years which was optimized for the requirements at production start. The next step was to significantly increase output. This is a trend which has pervaded for many years in the pharmaceuticals sector.

In order to actually achieve improvements using the multitip punch, parameters and mechanical machine settings were adapted specifically. This also involved optimizing the filling unit to enable the four boreholes to be filled sufficiently. This is not automatically the case as a quadruple tool requires four times the volume to be pressed within the same period of time. A further optimization was represented by activating and adapting the special cylindrical height to less than 0.5 millimeters. “Pressing a smaller volume meant that it was possible to achieve such an increase in output with this tool. Even at around 250,000 tablets per hour, the required tablet strength was just about achieved as the forces are distributed across four boreholes. In other words, without our consulting services, the customer would probably not have achieved the desired increase to 400,000 tablets per hour”, according to Jochen Gaeth.

The right combination is decisive

In any case, choosing a multitip punch is only one of many ways to improve output. In most cases, the combination of punch and settings is what counts: “The required output volume of at least 400,000 tablets per hour in this case could also have been realized using a simple tool and our patented FS12® punch, for example”, claims Carmen Ackermann, Product Manager Tableting Tools at

Performance comparison on a 2090i from Fette Compacting			
Punch:	FS12®	EU19	Multitip punch EU1"-441
Stations:	66	43	30 x 4 = 120
Max. speed (min-1):	120	120	100
Max. output: (tablets/h):	475,200	324,000	720,000

EU19 and Multitip punch EU1"-441 using dies, FS12® using segments

Fette Compacting. One fundamental advantage of a simple tool is its easier maintenance and cleaning. Furthermore, each tablet is monitored individually during compression and ejected if necessary. This translates into lower tablet loss.

But the FS® punches also exhibit numerous special features which have a major influence on output. These include an application-optimized headform which is somewhat flatter and exhibits a flowing startup performance. Thanks to smaller spaces between the punch heads, more punches can be accommodated than when using conventional tools. This optimizes the overall process: the dwell time increases and running performance is smoother. Wear is also reduced on all components, e.g. on the actual punches and the pressure rollers. This improves tablet quality within a batch and increases production feasibility.

Companies, therefore, are obliged to consider whether a multitip or a simple tool is more effective. A multitip tool usually only pays off if sufficient time is available for maintenance and cleaning which are more complex. These are the types of decisions where support is offered by performance consultants at Fette Compacting.

PRELIMINARY CHECKS FOR TABLET PRESSES



Isa Wittmann, Performance Consultant at Fette Compacting

A small O-ring ensuring reliable lower punch lubrication costs about three Euro. “Preventive Maintenance” standards include examining the function and possible signs of wear on the punch heads. In one particular application, this was the exact maintenance step which was skipped due to a lack of expertise. Accordingly, the initial signs of wear and the hole in the O-ring remained undetected. The result: a worn curve set, three worn punch sets and total damage of around 80,000 Euro. How could this come about and how can such events be prevented?

At first, a German pharmaceutical company producing various products on a 2090i tablet press from Fette Compacting only noticed the wear on the punch heads by pure coincidence. But instead of examining the lubricating device, the customer simply ordered a new curve set. As tree different tablet shapes were running on the machine, three punch sets were worn and had to be purchased new.

But the problem recurred unnoticed after only a short time. “The parts are freshly lubricated when the machine starts up. But this oil is used up after only half an hour and the broken ring meant that it was not replenished. It is easy to imagine what an eight-hour batch of wear means when the lower punches are run without lubrication”, is how Isa Wittmann, Performance Consultant at Fette Compacting, describes the customer’s situation.

Preventive maintenance is paramount
“Preventive maintenance is paramount. Far too much time can pass until such a fault is detected on the product through deviations in weight or similar. Such essential machine parts must be examined after every cleaning”, according to Wittmann. Users learn about preventive maintenance in the very first maintenance training session on the machine: What parts need to be examined when? What parts need to be replaced regularly? When should a mechanic be contacted?

It is worthwhile for companies to invest in training their employees and committing them to proactive maintenance. Apart from material and repair costs, machine downtimes also mean financial losses. If wear is discovered at a late stage, subsequent damage is even possible – on the pressure roller, for example.

Training courses for any requirement
Fette Compacting offers an entire range of training courses on basic operation and maintenance but also for special requirements. In the area of production, expert training is available on how to improve overall tableting performance as well as standard introductions to operation, maintenance, setup, and cleaning. Special training courses are also devoted to tableting tools, production of double-layer tablets, and in-process control.

“One key effect of our training courses involves sensitizing users for regular machine maintenance. After all, as in the case of this customer, it is often much more expensive – and above all unnecessary – to have to learn from your mistakes”, explains Isa Wittmann.



Here are all the consequences of inadequate lubrication visible: worn punch heads and scratches in the punch curves.

NEWS

CIPM CHINA: PRODUCT INNOVATIONS FOR THE ASIAN MARKET



The China International Pharmaceutical Machinery Expo (CIPM) took place from November 5-7, 2018 in Wuhan in Central China. At one of the largest trade fairs for pharmaceutical engineering, Fette Compacting presented its new products for the Asian market.

One highlight was represented by the revised machines in the P Series featuring the P1010, P2020 and P3030 models. For several years, the P Series has stood for high output, flexible production and swift format changes. The CIPM saw Rui Geng, Head of R&D and Product Management at Fette Compacting China, present the improvements: “Apart from a user-optimized design, the P Series now offers new software functions and process equipment which is easy to integrate. Like the other series offered by Fette Compacting, the ergonomic design aims for particularly easy operation, cleaning and conversion.”

Visitors also had the opportunity to familiarize themselves with the new comprehensive approach of Lifetime Efficiency and to inspect the FEC40 capsule filling machine.



TECHNICAL SYMPOSIUM IN BRAZIL



Opening of the technical symposium by Edilson Viola, Managing Director at Fette Compacting Brazil

According to a study by Germany Trade & Invest, the Brazilian pharmaceutical market continues to post double-digit growth figures (GTAI 2018). This is primarily attributable to an increased health awareness and Brazil's ageing population. In order to cover this high demand for medication, efficient technologies and processes are in equal demand in tablet and capsule production.

Fette Compacting presented new solutions for these requirements at the technical symposium in Brazil in September 2018. The event saw participation by more than 100 people, including employees from 30 pharmaceutical companies – representing 60 percent of the Brazilian market. The main topics at the symposium were: rotary press technologies for tablet presses, capsule filling technologies for powder and pellets, Lifetime Efficiency (see pages 4-7), and potential approaches to Industrie 4.0.

NEW MANAGING DIRECTOR AT FETTE COMPACTING AMERICA



Ulrik Frodermann, Managing Director at Fette Compacting America

July 2018 saw Ulrik Frodermann assume the role of Managing Director at the Fette Compacting America subsidiary.

A mechanical engineering graduate, he has largely worked in the area of international machine and plant engineering. He has been working in the USA for the last 20 years which means he has extensive knowledge of the US market. Since 2009, he has held several management positions, most recently as Managing Director of the US subsidiary of Schenck Corporation.

“The United States is among the top five pharmaceutical markets in the world”, claims Frodermann. “I look forward to the challenge of managing and developing the tablet and capsule production activities of Fette Compacting in this innovative environment.”

A perfectly normal stroke of genius

at Fette Compacting

Our engineers see themselves primarily as inventors. How to make things even more effective? More cost-efficient? And across the entire machine life cycle? Find out more about our fantastic career opportunities at www.fette-compacting.com/careers

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