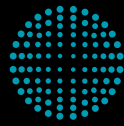


WHAT'S NEXT?



FETTE
COMPACTING

FETTE COMPACTING MAGAZINE 2023/2



NEW i SERIES

High-tech for high-dosage ginkgo

CORPORATE SOCIAL RESPONSIBILITY

The path to sustainable production

TABLETING TOOLS

The anti-sticking effect

CONTENT

- 4 FROM THE MANAGEMENT**
With tradition and zest for the future
- 8 CORPORATE SOCIAL RESPONSIBILITY**
The path to sustainable production
- 12 NEW i SERIES**
High-tech for high-dosage ginkgo
- 16 TABLETING TOOLS**
The anti-sticking effect
- 18 LAB SOLUTIONS**
Understanding powder
- 22 PERFORMANCE CONSULTING**
Fleet Management releases potentials
- 24 NEWS**
From the world of Fette Compacting



4



8



12



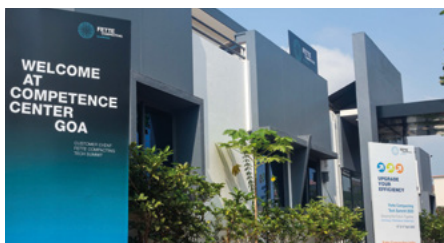
16



18



22



24



Dear readers,

With the new edition of What's Next?, I invite you to join us on a journey into the future. Over the next few pages, you will receive insights into the topics which are of increasing relevance for the area of special machine engineering and have found their way into our corporate strategy. There is one thing I can already assure you of: As our customers, you are and will always be at the heart of our commitment and attention, closely linked to the high esteem in which we hold our employees and partners. After all, the future is best designed through collaboration by all stakeholders.

We already have lots of ideas as to the specific approaches we wish to take and combining tried-and-tested measures with new ones. Read here, for example, what general changes lie ahead in the years to come and what we have planned in terms of Corporate Social Responsibility. Find out what technological innovations are ensuring maximum quality and efficiency as formulations become ever more complex: from the new i Series through an innovative coating for tableting tools to powder compacting analysis with Lab Solutions.

Just how far this collaborative focus extends over and beyond technologies is shown by the reports on our comprehensive fleet management and a new group with the promising name of "Future Technologies."

We hope you have an inspiring read!

Sincerely, Joachim Dittrich

CEO Fette Compacting

Imprint

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WITH TRADITION AND A ZEST FOR THE FUTURE



In early 2021, Joachim Dittrich assumed the position of Chief Executive Officer at Fette Compacting. Anke Fischer soon joined him as Chief Financial Officer. In this interview, they embark on a journey through time from the early past to the distant future.

Mr. Dittrich and Ms. Fischer,
75 years of Fette Compacting:
What do you associate with this?

JD: 1948 saw the first tableting press from Fette Compacting being launched onto the market, the "Hanseaten Perfecta." As a Hamburg native, the name "Hanseaten" also reminds me of our traditional red and white biscuits. But it actually describes a basic attitude, which I see as being characterized by pragmatism, reliability and openness to the world. As a Hamburg businessman, a handshake still means much to me today. I think it's great that even the name of our first machine has forged a bond of trust with our customers that still endures today.

AF: The development we have undergone as a company since our establishment is something I find remarkable: from a simple eccentric press to a continuous direct compression system. This underlines our path from a purely manufacturer of machines to a leading supplier of process technology.

Healthcare is experiencing profound changes such as demographic shifts, shortages of skilled workers, and recurring supply shortages. How is Fette Compacting adapting to this?

JD: You are referring to some major challenges, which can even be supplemented by contexts such as climate change and cyber security. To address these issues with confidence, we are focusing more than ever on the needs of our customers, strengthening our international orientation, promoting innovative digital solutions, and consistently applying sustainability criteria in all our activities.

AF: This concerns our external perspectives as much as our internal corporate development. After all, we can only achieve transformation if we have the right personnel resources. That is why we have embarked on a culture journey and incorporated all of our employees in our corporate philosophy of "Together for Quality of Life". We are also integrating external ideas and requests. This puts us in a position to work in partnership, simplify complex manufacturing processes, and ultimately improve the quality of life for everyone all over the world.

Let's dive deeper into the strategic focus areas: Customer orientation and internationalization are not exactly new, are they?

JD: Certainly not, because just by looking at the last 75 years, you can see that Fette Compacting lives both. Yet so much has changed: Areas of technology such as Continuous Manufacturing or operator protection with containment have become highly complex, combined with increasingly demanding active substance formulations and a strongly regulated market environment. Particularly in the case of new developments, it is all the more important that producers and machine manufacturers cooperate and enter into partnerships at an early stage. Our ambitions are clear on this path: We are evolving from a machine builder to a supplier of process technology for powder formulation and tableting. In doing so, we will continue to expand our network, which will also include increasing our local-for-local structures. Today, we are already producing mainly those products in our Chinese plant that are destined for Asian and price-sensitive markets. This approach creates security of supply and offers the greatest possible proximity to regional customer requirements.

What about sustainability measures? What milestones have you already reached?

AF: I'd like to provide a few insights here: We have been undergoing EcoVadis assessments for years and are a member of the Blue Competence sustainability initiative of the VDMA. This initiative pursues the goal of promoting sustainability specifically in mechanical and plant engineering. Responsible and respectful handling of resources and the environment is more important to us now than ever before. Since 2022, our environmental management system has been helping us to achieve our own environmental and climate goals. One focus is on energy- and material-efficient production with significant savings in terms of water consumption and emissions. We are working continuously to reduce our CO₂ footprint and design the manufacturing process more sustainably. This can also be read in our sustainability report, which clearly presents all guidelines and measures.

JD: We are also recording success with regard to sustainability measures from which our customers benefit. As an example, I would like to mention the new i Series, which has succeeded in reducing energy consumption by up to 15 percent compared to similar machines. Potentials for saving resources and costs can be found everywhere: In pharmaceutical production, for example, material losses can be avoided if users consider continuous direct compression with the FE CPS and ePAT integrated process analysis technology. And analytical tools such as the new F Lab Series also help to develop formulations in a way that conserves resources and reduces downtimes in production. Often, several factors come together, as the performance analyses of our Fleet Management at various customers show. This is where our collaborative partnership comes full circle, enabling a holistic view of all factors associated with production.



Joachim Dittrich,
CEO at Fette Compacting



Anke Fischer,
CFO at Fette Compacting

THE PATH TO SUSTAINABLE PRODUCTION

Simply producing good products is no longer sufficient today. Companies need to provide evidence of their concern for the environment and people.

Fette Compacting has compiled an overview of what lies ahead for the pharmaceutical and food industry along with other manufacturing sectors.

The path to a sustainable future is currently a regulatory challenge. In the European Union, for example, various obligations for sustainability-related reporting are taking effect. With complex material flows and potentially high levels of energy consumption, manufacturing companies in particular are facing major questions: When do I have to fulfill which obligations? How can I take action now to fully exploit my savings potential? What contribution can I make to sustainable production beyond the regulations?

At Fette Compacting Corporate Social Responsibility is centrally anchored in its corporate strategy. The obligations and milestones thereby established equally concern mechanical engineering and its customers and partners. It's time to obtain a collective chronological overview.



2017

The German Engineering Federation (Deutscher Maschinen- und Anlagenbau (VDMA)), of which Fette Compacting is also a member, has adopted twelve pioneering sustainability principles for production as part of its "Blue Competence" sustainability initiative.

Sustainability principles of the mechanical and plant engineering industry

Strategic:

1. Sustainability is an essential component of our corporate strategy.
2. With sustainable business models, we create stable values and secure our corporate success.
3. Our technology and solutions promote sustainable development worldwide.

Operative:

4. Sustainable ideas and actions are reflected in our processes and products.
5. We act in a resource-conserving manner and are committed to climate protection.
6. Our employees are our most valuable resource. We encourage commitment and participation opportunities.
7. We are committed to respecting human rights.

Cultural:

8. Our company is a living environment.
9. We assume social responsibility in our regions.
10. We keep our promises!

Communicative:

11. We maintain active exchanges with all stakeholders.
12. We communicate our sustainable actions transparently.

2020

The EU taxonomy comes into force. With it, economic activities are to be considered sustainable only if they can be proven on the basis of objective criteria. The EU Commission has defined several target areas for this: climate protection, adaptation to climate change, sustainable use and protection of water and marine resources, transition to a circular economy, prevention and control of environmental pollution, protection and restoration of biodiversity and ecosystems.

Notes for producers:

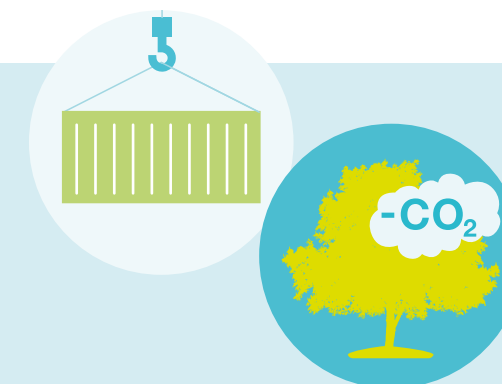
- + Identify business activities in your company that could fall within the scope of the EU taxonomy. These include, for example, renewable energies, energy efficiency, and low-emission logistics.
- + Check whether your investment projects meet the minimum requirements of the EU taxonomy – do they fulfill the applicable environment criteria, for example?

2021

In Germany, the Supply Chain Sourcing Obligations Act (LkSG) is announced. It stipulates that from 2023 all companies with at least 3,000 employees will be subject to its regulations, and from 2024 all companies with 1,000 or more employees.

Notes for producers:

- + Collaborate with certified partners and suppliers. This will ensure that the entire value-added chain of your production is or becomes sustainable.

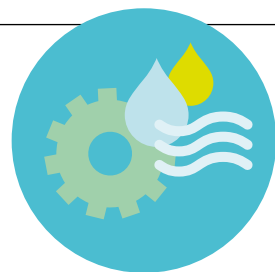


2022

The first companies are required to provide evidence of the revenue share of sustainable activities in their business activities in a CSR report.

Notes for producers:

- + Ensure that you avail of the requisite data for reporting with which to evaluate your sustainability activities. Environmental indicators, emissions data and resource consumption, among others, play an important role.



2023

In July, the EU reported the final draft of the standard governing sustainability reporting (European Sustainability Reporting Standards, ESRS).

Notes for producers:

- + Above all, stay up to date! EU taxonomy criteria and legal requirements are still subject to change. Your company should be up to date to ensure you can adapt in time.

2030

In accordance with the European Green Deal, greenhouse gas emissions in Europe are to have been reduced by at least 55 percent compared with 1990 levels. The concepts of the circular economy should also now be significantly advanced in the areas of mechanical and plant engineering. What this might look like in concrete terms is the subject of the study "Circular Economy 4.0" by VDMA Think Tank Future Business in cooperation with the Fraunhofer Institute for Systems and Innovation Research ISI.

Notes for producers:

As a general rule, manufacturers should start early to establish a sustainability strategy in which they define goals, commitments and measures to reduce environmental impacts. The following aspects are to be considered in the strategy:

- + Invest in the research and development of environmentally-friendly products and services.
- + Examine your energy and resource consumption to identify and remedy weaknesses.
- + Especially in energy-intensive production, it is worth switching to renewable energies to reduce the ecological footprint.
- + In order to minimize resource waste, companies should repair and recondition products, actively promoting the circular economy.
- + Monitor your supply chains to ensure that suppliers also comply with sustainable practices.

2024

The Corporate Sustainability Due Diligence Directive (CSDDD), also known as the EU Supply Chain Guideline, comes into effect for all companies with more than 500 employees. Together with other regulatory initiatives such as the Corporate Sustainability Reporting Directive (CSRD) and the EU taxonomy, it takes an important step toward more sustainable business under uniform conditions. The CSRD obliges all companies with more than 500 employees to report on their sustainability activities. As of 2025, this obligation will apply for companies with more than 250 employees.

Notes for producers:

- + On the one hand, the CSDDD and CSRD regulations are extensive, but they also leave room for interpretation. In particular, companies that are new to reporting should not be afraid to call in external experts who can correctly interpret the requirements and support implementation.

2050

The major goal of the European Green Deal is climate neutrality by 2050. Germany wants to be greenhouse gas neutral as early as 2045. On this ambitious path, environmentally-conscious production is becoming a decisive success factor – with major challenges and even greater opportunities.

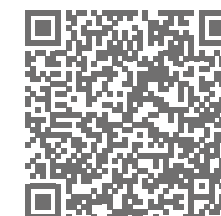


Starting signal for more sustainability: new report from Fette Compacting

In its Sustainability Report 2022, Fette Compacting disclosed all of its activities in the area of environment and social responsibility as well as all key parameters. "The report clearly shows the challenges we face in our business area," claims Sabrina Reinsch, Corporate Sustainability Manager at Fette Compacting. "With our newly-established sustainability management, we will systematically address these issues. In 2022, we had our environmental management system certified according to DIN EN ISO 14001. Now we are full of enthusiasm to continue to drive our sustainability activities."

Proof of this comes in the form of silver certification by the internationally renowned assessment platform EcoVadis received for the first time in 2022. Since 2017, EcoVadis has been evaluating Fette Compacting's supply chains in terms of environmental protection, labor and human rights, ethics, and sustainable procurement. This score puts Fette Compacting in the top eleven percent of mechanical engineering companies.

You can find the full report here:



HIGH-TECH FOR HIGH-DOSAGE GINKGO

Dr. Willmar Schwabe is renowned for high-quality plant-based medications such as Tebonin® containing the ginkgo extract EGb 761®. In the course of modernizing its machines, the pharmaceutical company has started using the F20i tablet press. This has already resulted in a doubling of production volume. What's more, the all-rounder in the new i Series is accompanied by numerous innovative features – from its high degree of compatibility through easy cleaning to the multi-format tablet chute.

The seven tablet presses from Fette Compacting in operation at Dr. Willmar Schwabe are now joined by a high-performance all-rounder in the form of the F20i. Numerous innovations in the new i Series made the decision an easy one: "For us, it was important to significantly increase the production speed accompanied by the same or better quality, ideally with the possibility of continuing to use existing equipment," explains Sebastian Kopf, Group Leader Maintenance at Dr. Willmar Schwabe. "In this respect, the F20i even exceeded our expectations. We will primarily be using this high-dosage tableting press to produce our blockbuster Tebonin®, which contains a high-dosage special ginkgo extract. Our main goal of increasing output has already been more than complied with: we can now press two batches instead of one."

Kopf had already been particularly impressed "by the well-conceived combination of familiar technology and practical innovations." These include, for example, a multi-format tablet chute, which is suitable for most standard tablet formats and a special switch shape ensures that the tablets automatically take the path of least frictional resistance. This reduces the risk of material congestion. "The new chute has proven itself to be very effective. The tablets slide much better and not a single tablet has gotten stuck yet. I also think the standard dust protection of the discharge is extremely practical," emphasizes Kopf.

The F20i already achieves a top level of safety due to the fact that it was designed to be dustproof as standard, for example. A containment option is also available for active or highly-active pharmaceutical ingredients.

"WE WERE PARTICULARLY IMPRESSED BY THE WELL-CONCEIVED COMBINATION OF FAMILIAR TECHNOLOGY AND PRACTICAL INNOVATIONS."

**Sebastian Kopf,
Group Leader Maintenance at Dr. Willmar Schwabe**



The F20i integrates seamlessly into the existing production environment. Minor modifications suffice to import components from the tablet presses of the previous machine generation. Dr. Willmar Schwabe is primarily used for manufacturing the world-renowned Tebonin® pharmaceutical, which contains a high-dosage ginkgo extract.



Compatible and connectible

The fact that existing components can also continue to be used represents a further special feature of the new i Series: it is system-compatible across generations. All process-based assemblies are the same as or similar to the classic i Series. "Even the turrets from the 2090i fit after minor modifications," enthuses Kopf.

The tablet presses of the new generation are also consistently aligned toward a future with digital connections. They avail of all technical prerequisites for a modern production environment in accordance with the internet of things (IoT) and can be monitored by app independent of location. The process equipment can also be easily integrated, via plug and play. "We will gradually modernize our machine park and try to exhaust all of the technical possibilities. After all, high pressure on costs and increasingly tight spatial conditions mean that the trend is continuing toward leaner, more efficient and less expensive production," asserts Kopf.

Easy to clean and operate

In this context, the reduced effort due to optimized cleaning was also a convincing factor at Dr. Willmar Schwabe. The F20i has significantly fewer surfaces to be cleaned. The shorter cleaning cycles associated with this save costs while reducing potential exposure to active ingredients. Further savings in time are achieved by an optimized turret-changing system, which reduces the time for dismantling to only a few minutes thanks to an integrated support carrier. "The new software also offers us a wide variety of possibilities and provides active support in troubleshooting, which makes our work that much easier," emphasizes Kopf.

The F20i has been successfully commissioned at Dr. Willmar Schwabe. On the basis of positive experience, other products are also to be manufactured on the versatile single rotary press in the future. An initial summary by Kopf: "A phenomenal collaboration has evolved here. The first test batches are pressed and we remain in regular dialog with Fette Compacting."

Tableting 2.0: Integration, energy monitoring, and digitalization in a single system

The new i Series meets all requirements from global pharmaceutical companies to nutrition start-ups on a platform basis. The "i" of the next generation stands for innovation, integration, intuitive operation, and intelligent product design. Accordingly, the platform is convincing its users through the following features, among others:

Cross-generation system compatibility

Process-based assemblies are identical to the classic series or can be used with minimal modifications.

Easy integration

The high degree of compatibility ensures significantly less effort associated with validation and qualification.

Innovative design

Design innovations include a high-performance multi-format tablet chute, an optimized turret changing system, and dust-proof basic equipment.

Integrated energy monitoring

Intelligent monitoring permits precise prognoses with potential energy savings of around 15 percent.

User-friendliness

Users benefit from intuitive controls, step-by-step instructions via Workflow Operation Wizard, automatic component detection, and much more.

"Digital Ready"

The new i Series stands for state-of-the-art connectivity with interfaces for Manufacturing Execution System (MES) and IoT as well as for mobile production monitoring in real time.

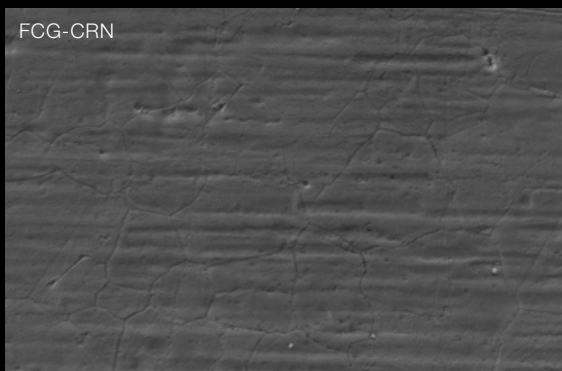


THE ANTI-STICKING EFFECT

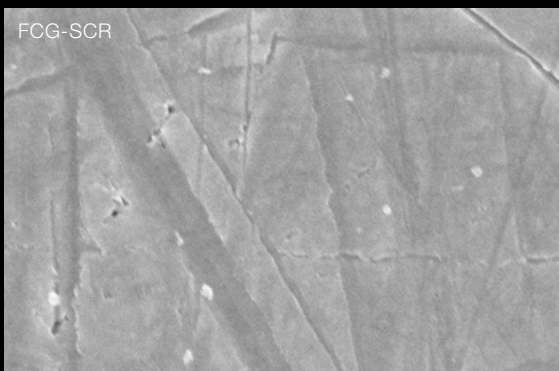
Punches, segments, and dies need to be able to withstand ever higher loads. But the sticking tendency of products to tableting tools in particular often becomes a challenge. A new anti-sticking coating now offers double the resistance, minimizing sticking and counteracting wear in the long term.

Efficient solid formulation production requires tableting tools that process even the most demanding materials reliably and have a long service life. In addition to high-performance materials and special surface structures, tailor-made coatings also play a decisive role in this regard.

“Recent years have shown the great increase in machine performance and output rates achieved in the tableting sector,” explains Janis Herrmann, R&D Engineer Tableting Tools at Fette Compacting. “This has an impact on the tableting tools, which are exposed to ever increasing loads by compaction forces and accelerated processes. At the same time, there is an increase in the variance of auxiliary materials, which can lead to a distinctive tendency to stick during compacting or are particularly abrasive due to their coarse-grained structure. In order to secure the efficiency of the tools and even increase output, we are working intensively on optimizing materials and coatings.”



FCG-CRN



FCG-SCR

Compared to the familiar CRN coating, SCR is even denser, harder, more abrasion-resistant and more durable.

Protective coatings

The Business Unit Tableting Tools offers an extensive portfolio of coatings (see table below). This enables users to cover practically any application in the production of pharmaceuticals and dietary supplements. On the one hand, the focus is on product properties such as thermolability, which manifests itself in the form of stickiness on punches, segments, and dies. On the other hand, formulations can be very coarse-grained and hard, i.e., abrasive, which increases wear.

A new anti-sticking coating is very effective at counteracting both phenomena: “Chromium nitride super smooth (FCG-SCR)” displays optimal anti-sticking properties as well as a high degree of hardness and resistance to wear. The basis for this is a previously unattained fine and homogeneous microstructure, which achieves even better results than PVD chrome (PCR) and “normal” chromium nitride (CRN) with regard to the tendency to stick. Almost all tableting tools can be provided with this anti-sticking coating.

Come by and try it out

Whether the new coating is the best choice or simply represents another potential solution from the portfolio can ideally be determined during application tests. “Interested people can visit us at our customer center in Schwarzenbek and find out about various options,” Herrmann proposes. “This is how we always approach challenges in production: openly and cooperatively. Perhaps together we will come to the conclusion that, in addition to the coating, it might also be useful to adjust the formulation. Or we can take a look at EasyCare’s handling and cleaning modules on site, which also include a polishing machine. Polishing the pressing areas is also helpful to maintain or enhance an anti-sticking effect, or to recondition a stressed coating. Ultimately, there are many ways to do it, because tableting tools are as diverse as the products themselves.”

Coating	Thickness [µm]	Hardness [HV 0.03]	Wear-resistance	Antiadhesion	Corrosion Protection
Hard Chrome Plating (FCG-HCP)	3-5	1,000	+	+	+++
PVD-Chrome (FCG-PCR)	2.5-4	1,000	+	+++	+++
Chrome Nitride (FCG-CRN)	2.5-4	1,800	++	++	++
Chrome Nitride super glatt (FCG-SCR)	5-6.5	2,000	++	+++	++
Titanium Nitride (FCG-TIN)	2.5-4	2,500	++	++	+
Titanium Aluminium Nitride (FCG-TAN)	2.5-4	3,600	+++	+	+
Diamond like Carbon (FCG-DLC)	2.5-4	2,800	++	+++	

With Fette Compacting’s coating portfolio, tableting tools can be equipped for almost all applications in the production of pharmaceuticals and dietary supplements.

UNDERSTANDING POWDER

Powder compaction is an important and often critical process in tablet production. Those who develop a precise understanding of the compacting behavior of their formulations at an early stage are clearly at an advantage.

How much compaction pressure do I need to compact my powder efficiently? Does my formulation tend to stick – or is it rather hard and coarse-grained, increasing the possibility of abrasive behavior? How do deviations in raw material deliveries affect tablet quality?

Questions like these arise again and again in the production of pharmaceuticals and dietary supplements. Practice has shown that an exact understanding of powders and blends is crucial for manufacturing tablets of constantly high quality and avoiding undesirable powder phenomena. Users who understand their formulations in detail ensure sustainable product quality and prevent efficiency losses or even production downtime.

Quality by Design is the key

The central key on this path is Quality by Design (QbD), especially when it comes to sophisticated active ingredients, excipients and additives. According to QbD, an in-depth understanding of the product and process is required to produce tablets with the best possible, consistent quality. “We have therefore placed the precision understanding of powders and formulations right at the center of our Lab Solutions area,” explains Doreen Dunst, Application Specialist at Fette Compacting. “There is also an equal focus on detailed data analysis and intuitive operation of the analysis equipment. Only when both aspects – precision and simplicity – merge, can Quality by Design be optimally integrated into everyday production routines.”

The F Lab Series offered by Fette Compacting meets this demand with compact and state-of-the-art Powder Compacting Analyzing (PCA) units. For example, they provide information on how hard a tablet can be or the extent to which a powder tends to stick. This knowledge is always helpful, particularly in the development of formulations. If mixtures are understood at an early stage, the times for scale-up and time-to-market can also be shortened. This information is also useful in troubleshooting, as problematic batches can be compared with trouble-free batches and causes can be better identified. Only small amounts of material are required for each analysis, so the system saves time and material overall – and is therefore particularly cost-efficient. “There is no other way to obtain valuable data for tablet production as easily, quickly and cheaply,” emphasizes Dunst.

“ONLY WHEN BOTH ASPECTS – PRECISION AND SIMPLICITY – MERGE, CAN QUALITY BY DESIGN BE OPTIMALLY INTEGRATED INTO EVERYDAY PRODUCTION ROUTINES.”

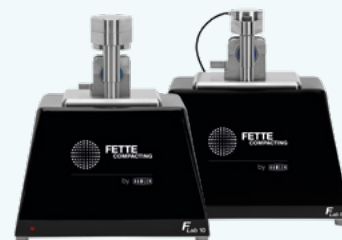
Doreen Dunst, Application Specialist at Fette Compacting



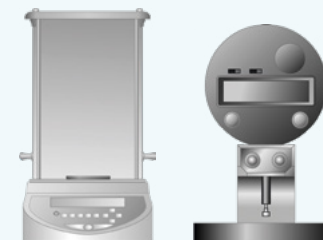
Collecting meaningful data

Two units are available for the analysis: F Lab 5 offers a compaction pressure up to five Kilonewtons and is suitable for tablets with diameters up to ten millimeters. F Lab 10 achieves up to ten Kilonewtons for tablets with diameters up to 15 millimeters. Both analyzers are extremely compact, easy to handle, and easy to clean. They also permit the production of smaller tablet volumes, for example for preformulation studies. In order to obtain meaningful data, other equipment is also used, forming a comprehensive analysis system in combination with the PCA units. These include measuring tablet properties using scales and a micrometer, as well as strength testing with a breaking strength tester. Customers are free to purchase all equipment from a single source or to use their existing measuring instruments together with the F Lab.

The analysis process could hardly be any easier: an operator weighs the requisite powder volume, fills the die, and starts the process via the integrated software. During the compacting process, F Lab measures the compaction pressure as a force-displacement profile, as well as the force to eject and strip the tablet. The other equipment records the physical tablet properties. This process is repeated for various compaction pressures, giving rise to extensive data series.



With the space-saving F Lab Series, users can easily condense and analyze their formulations. The PCA units are also suitable for use in isolators.



The most important tablet properties are recorded by scales and a micrometer.



A breaking strength tester examines the tablets for strength.

Data evaluation made easy

Finally, the data collected by the analyzers is bundled, correlated and clearly displayed on a dashboard via the F Lab Series software. Thanks to visualization with graphs and color codes, even less specialized personnel can immediately see which powder mixtures have the best tableting properties. This provides users with an overview of all relevant powder properties in only one hour. It usually takes about two hours for operators to learn how to use it.

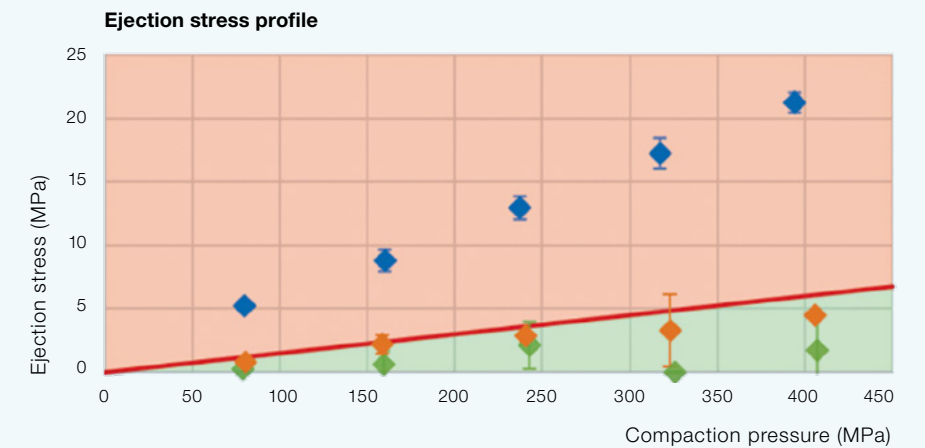
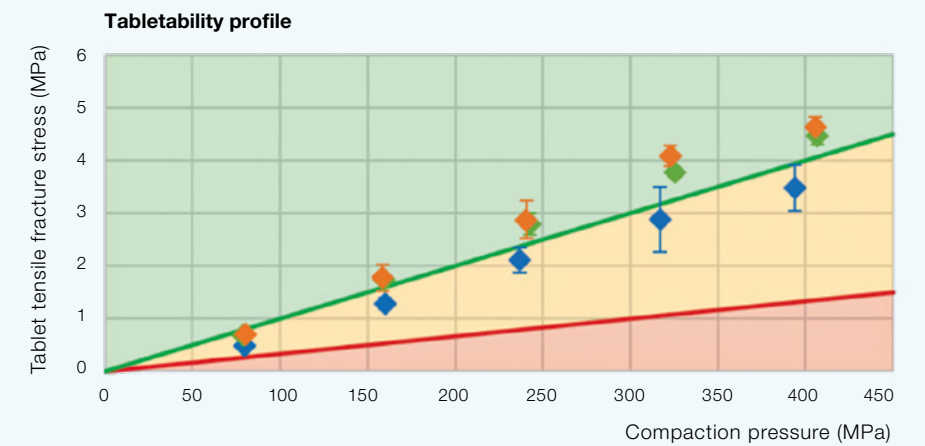
“In practice, this data can often help in troubleshooting production problems,” reports Dunst. “With F Lab, we can identify the exact causes and support customers in selecting optimal excipients for their respective formulations. Other important fields of application in the pharmaceutical and nutrition sectors include routine checks of raw materials and intermediates, as well as supplier qualification.”

Automated data analysis offers several advantages:

- + simplified data analysis thanks to fully-integrated software
- + automatic generation of data in accordance with the United States Pharmacopeia (USP)
- + material and formulation comparisons at a glance
- + easy data interpretation using color codes
- + no compacting analysis experience required
- + no manual data entry for the entire system



Everything at a glance: The dashboard of the analysis software provides a quick overview of parameters such as compactability and compressibility. The diagrams correlate various physical variables to determine the optimum compaction pressure, for example.



In an exemplary analysis for a pharmaceutical producer, tabletability and the ejection stress profile were determined, among other things. For this purpose, the tensile strength and the normalized ejection stress were related to the compaction pressure over a wide range. The green areas indicate the respective optimum range. As can easily be seen, the test series with the green and orange data are already in the optimum range, while the powder mixture shown in blue is less suitable for best quality results and would therefore need to be changed.



FLEET MANAGEMENT RELEASES POTENTIALS

Fleet Management from Fette Compacting enables users to analyze the performance of their tablet production as a whole. And unleash undreamt-of potential.

We are familiar with it from logistics: in daily operation, a vehicle fleet forms a complex and dynamic system of routes, vehicle parameters, and countless influencing factors. A precise analysis of the fleet makes it possible to optimally use resources and sustainably reduce overall costs.

This comprehensive approach can be perfectly applied to tablet production, as explained by Dr. Ina Petry, Group Lead Application Consulting at Fette Compacting: "We know from practice that efficiency reserves remain untapped even in state-of-the-art machine parks. This is usually because users focus on remedying problems as they arise in ongoing production instead of tapping the full potential of their systems. This is where our Fleet Management comes in, with the goal of systematically improving all of the production processes within a plant. Building on this, we are also able to compare several sites of the same company and transfer findings to other plants, up to global optimization concepts."

Untapped data treasures

Such potential can become visible in a wide variety of areas. One user may benefit from increased output thanks to modified tableting tools or spare parts services, another from reduced product loss, and yet another from machine upgrades – or even all of the above. As a result, manufacturers can reduce costs, increase production capacity, and improve product quality.

Dr. Petry goes on to explain how "Fleet Management bundles competencies in all departments, combined with the international experience we have been able to gain through user consultations and product tests in our Competence Centers. Using these insights, we can analyze the performance of entire tableting lines and create tailored concepts to improve overall performance. In addition to the actual tableting process, we also examine upstream and downstream processes, in order to gain an overall image."

"FLEET MANAGEMENT ENTAILS MUCH MORE INTENSIVE COOPERATION ON SITE. THIS ENABLES US TO IDENTIFY THE REALLY MAJOR SAVINGS POTENTIAL AND INCREASE THE COMPETITIVENESS OF OUR CUSTOMERS OVER THE LONG TERM."

Dr. Ina Petry, Group Lead Application Consulting at Fette Compacting

A new kind of collaboration

Successful Fleet Management is not only dependent on the database – comprehensive and open collaboration between the machine expert and the manufacturer is also crucial. Here, the perspective is increasingly changing from reactive problem-solving to proactive cooperation. "The consulting relationship with customers used to concentrate on handling specific applications problems," claims Petry. "Fleet Management entails much more intensive cooperation on site. This enables us to identify the really major savings potential and increase the competitiveness of our customers over the long term."

50 percent more capacity

At one exemplary pharmaceutical company, Fleet Management was able to identify considerable potential, as Petry reports: "The customer was manufacturing over ten products on four older tablet presses and wanted to improve its performance. A first step saw us recording the production data and calculating where the manufacturer stands in terms of its critical metrics. In a second step, we developed scenarios with various technical features and calculated how each one changed these parameters. This way, we were able to determine the ideal investment, in this case by focusing on two types of machines and the best matching tableting tools. This resulted in possible savings potential of around 50 percent of production capacity, which the company could then use to improve its output."

Sequence and investments needed



Select site and contacts



Analyse and catch strategy



Customizing Concepts



Roll-out Concept



Wrap-up and Calculation



Next Steps

FROM THE WORLD OF FETTE COMPACTING

New tablet checker: Checkmaster CM-X for Containment

The Checkmaster CM-X allows tablets to be checked under containment conditions. Customers were able to see the device in action for the first time at the Powtech 2023 in Nuremberg.

In conjunction with the F10i, F20i and F30i tablet presses of the new i Series, the CM-X tests tablets randomly and under containment conditions up to exposure level 4 (Occupational Exposure Band, OEB4). It tests tablets for the parameters weight, size, thickness and breaking strength (hardness). The process equipment thus complements the range of proven tablet testers.

The ergonomic Human Machine Interface (HMI) of the new i Series makes the Checkmaster easy to operate while minimizing the risk of errors by eliminating manual data entry. "Operation via the new i Series terminal results in full data exchanges between tablet press and Checkmaster," explains Axel Schroeter, Senior Product Manager at Fette Compacting.

Features for maximum precision
Standard features of the Checkmaster include "SmartFeed," "CleanFeed," and "VibraFix." "SmartFeed" is a new separation system with progressively-controlled chute and automatic inclination adjustment. This ensures that only one tablet falls into the test device at a time. The "CleanFeed" function significantly reduces tablet dust in the Checkmaster. Shielding from the negative pressure of the tablet press during sampling and measurement is thereby automatic. "VibraFix" supports the length alignment of the oblong test tablets by precisely positioning and stabilizing them during the breaking strength test.

Optionally, customers can use an auto-alignment function with which the device adapts to the substrate independently. This feature is worthwhile for uneven floors or frequent movements of the machine. In addition, a centering unit (OZB) can be

booked for tablets of a special shape. IQ/OQ documentation in accordance with the rules of Good Manufacturing Practice (GMP) is also available.

Available with immediate effect
The device can be ordered now. The process equipment was developed by Fette Compacting together with its long-term partner Kraemer Elektronik and tested on the basis of production scenarios. "We are pleased about our good cooperation with Kraemer," emphasizes Lars Plüschau, Vice President Global Sales at Fette Compacting. "While developing the CM-X, we were able to combine our expertise and thus offer our customers convenient yet safe handling in the field of containment applications."



The CM-X allows tablet checking up to OEB Level 4. In September 2023, Fette Compacting presented the new Checkmaster for the first time at the Powtech in Nuremberg.



The continuous dosing-mixing unit FE CPS is the result of a consistent Quality by Design approach.

Future Technologies: Through the funnel of innovation

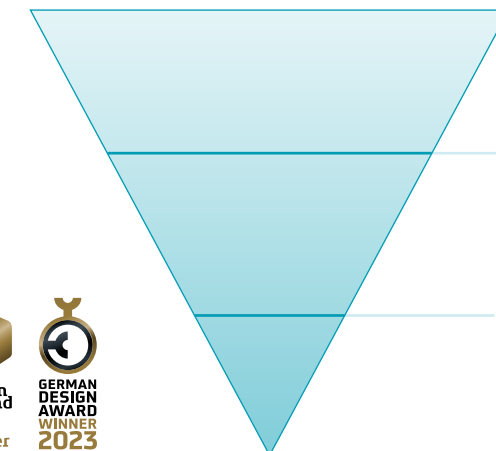
Turning ideas into ground-breaking products requires a broad horizon and a structured process. The Future Technologies group brings both of these together.

Innovations have a special place in Fette Compacting's corporate strategy. But this is not something that can be taken for granted, because true innovation requires a lot of freedom and flexibility ahead of the actual development work.

"In the new structure, every idea is welcome," explains Dr. Jan Wilkes, Global Head of Research and Development at Fette Compacting. "We proceed according to the principle of the innovation funnel: First, we are open to all ideas; then the core team selects by researching and evaluating in more depth. In this way, the promising prospects condense and a concrete project evolves."

No Boundaries
As part of research and development, the team supports both the ideas and the idea generators from engineering and the other departments of Fette Compacting. In doing so, the new team is aligned with the entire organization. "Ideas can turn into technological developments and later into innovative products with the initial support of Future Technologies," adds Nina Mang, Senior Innovation Architect at Fette Compacting. "To this end, we regularly gather feedback in order to find the optimal working mode. Nor are we solely focused on machines and tableting tools, but equally on processes and software. The holistic view is the decisive factor, always based on the current and future needs of our customers."

Innovative project
There is already a recent successful innovation project within Fette Compacting that can serve as precursor of this sound approach: the development of the continuous FE CPS dosing-mixing unit, which has truly revolutionized Continuous Manufacturing. "This required developing a comprehensive understanding of pharmaceutical powders and their behavior in different manufacturing processes," according to Wilkes. "We followed a Quality by Design approach from the beginning. Starting with a comprehensive knowledge of powders and process dynamics, an iterative plan of design, scientific knowledge and process understanding led us to the FE CPS and its embedded process analysis technology (ePAT) product development. Even now, we are constantly further developing the system with our first customers."



Ideas

Selection of promising ideas

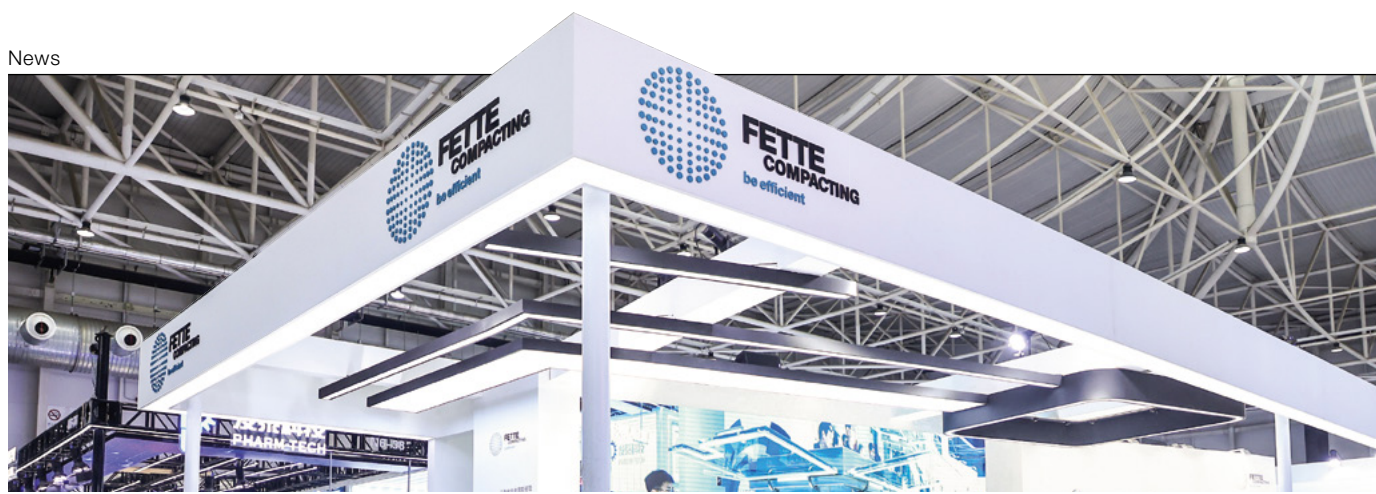
Research and evaluation

Approval of the favored idea

Technology development

Award-winning innovations:
This year, Fette Compacting received three coveted prizes: the German Innovation Award, the German Brand Award and the German Design Award.





Customer seminar and CIPM: Strong presence in China

China plays a key role in the future of the pharmaceutical and nutrition industry. Current trade fairs and events demonstrate the direction in which the sector is heading.

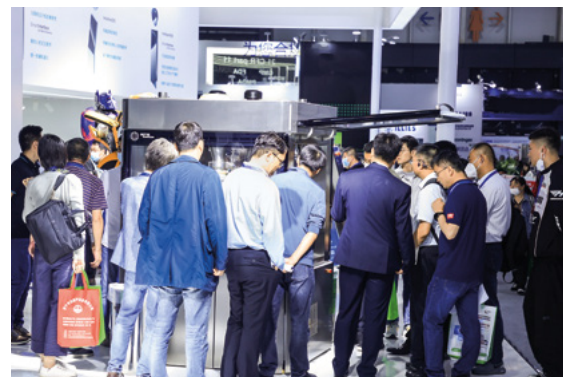
The production of pharmaceuticals and dietary supplements in China is in full swing. According to the China Economic Information Network (CEInet), sales remain at a high level, accounting for around 430 billion euros in 2022. The drivers are the progressive expansion of health care and demographic change, which are accompanied by an increased demand for medicines.

With its established and modern production site in Nanjing, Fette Compacting China is ideally positioned for these developments. A customer seminar in Guangzhou, China, under the motto "Upgrade Your Efficiency," showed which topics are in focus here. They include Continuous Manufacturing with the FE CPS dosing-mixing unit, holistic consulting based on the "Lifetime Efficiency" concept, and customized containment solutions for efficient operator protection.

Another highlight is represented by the China International Pharmaceutical Machinery Exposition (CIPM). In May 2023, the CIPM Spring took place in Qingdao and recorded more than 70,000 visitors. The Fette Compacting China stand received over 100 customers per day. The team was present once again at the CIPM Autumn from November 13-15 in Xiamen.



Around 50 customers from the Guangdong region took part in the customer seminar hosted by Fette Compacting in March 2023.



Under the motto "Together to the Next", Fette Compacting held numerous discussions with visitors to the CIPM 2023 Spring trade fair in Qingdao.



Competence Center Goa in new splendor

Fette Compacting opened a Competence Center in India twelve years ago. These premises have now been extensively modernized.

India remains one of the largest pharmaceutical production sites in the world. In Goa, western India, Fette Compacting took an important step in 2011 by setting up a Competence Center for tablet production. The recent modernization measures were aimed at providing customers and employees an improved working environment. Thus meeting and training rooms, the customer lounge and the employees' customer lounge and the employees' workplaces were modernized.

"Our primary goal with this project was to optimize the experience for both our customers and all employees," reports Ashok Gourish, Managing Director at Fette Compacting India. "We wanted to create an atmosphere in which everyone enjoys working. After all, more and more people are visiting the Competence Center to experience our products on site, conduct product and application trials, and receive training."

Getting off to a good start

The newly designed rooms were inaugurated in April 2023 with a partner meeting for the Asia-Pacific region (APAC), followed by a customer event with over 50 participants. This was the starting point to optimize the partnership interaction on site. Tablet presses of the new i Series, FE Series and P Series are available in Goa for technical demonstrations. Excellently-equipped training rooms and a laboratory now offer even more opportunities for online testing, training, and demonstrations.

"We are now ready to welcome customers from across the Asia Pacific region to Goa to take the collaboration to the next level," enthuses Dinesh Arumughan, Director of Customer Support at Fette Compacting India.



The Indian team will also present what Fette Compacting has to offer for the APAC region at the leading trade fair PMEC India from November 28-30, 2023 in Greater Noida.



Ashok Gourish, Managing Director at Fette Compacting India

be inspirational

At Fette Compacting, we are:
The world market leader for tablet presses in the pharmaceutical industry. A family-run company, ambitious yet value-oriented. A place where the best young professionals can kick off their careers. Determined to further improve quality of life and health around the world.

Fette Compacting Global Family – be inspirational, be efficient.
Join the Family! www.fc-gf.com



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