WHAT'S NEXT?

FETTE COMPACTING

FETTE COMPACTING MAGAZINE 2023/1



FOCUS ON SUSTAINABILITY
Health as a priority

FE CPS IN A FIELD TRIAL
Convincing across the board

NEW I SERIES
The tableting platform

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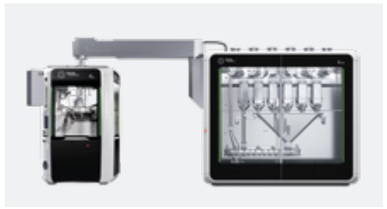
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DEAR READERS,

The key question of “What‘s Next?” always leads to new and exciting answers to what the next trends in solid manufacturing could be. This year, as we celebrate the 75th anniversary of our tablet presses, this includes innovative processes such as Continuous Manufacturing, holistic technologies such as the new i Series, sustainable strategies such as environmental management, and digital applications such as predictive maintenance.

All of these areas are helping to make pharmaceutical and nutrition supplement manufacturing fit for the future. The way there is paved by the motto “Together to the Next” and this is also our motto at this year’s leading trade show interpack in Düsseldorf. Together with customers and partners around the world, we are identifying areas for action, developing ideas, and exchanging information.

Read about the results in this issue of What's Next: from insights into the Corporate Social Responsibility staff unit, to field tests with the Continuous Processing Unit FE CPS and background information on the new i Series, to the “search for the golden batch” with the OSDi app ConditionMonitor. The reports on the F Lab powder analyzing unit and our modernization service are also both practical and collaborative.

What is your individual “Next”?
Email us at: tablet@fette-compacting.com

We hope you enjoy reading!
Your team at Fette Compacting

Imprint

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FOCUSING THE FUTURE – FOR 75 YEARS

"Together to the Next" - this is the motto of Fette Compacting's appearance at the leading trade show interpack this year. Shaping the future together with users has been the motto of the tableting specialists for 75 years. A brief look at the technological milestones shows this.



1948 Fette Compacting presents the first tableting machine developed in-house under the name Hanseaten Perfecta. The press had twelve stamping stations and was able to produce 30,000 tablets per hour.



1970 Fette Compacting develops the P 2000 and P 3000 models, marking the beginning of the era of high-speed tablet presses. For the first time, these machines enabled the production of large batches with exact dosing.



1982 At Achema 1982, Fette Compacting presents the PT 2080, the world's first computer-controlled tablet press. For the first time, it is possible to control the press and its peripherals via a uniform terminal and to log all process data.



1991 The PT 3090 is the first tablet press with a quick-change rotor - a milestone in the company's history. Strong demand makes Fette Compacting the world market leader. The consistent implementation of the modular system makes the i Series, based on the PT, the most successful tablet press series in the world.



2011 The FE55 celebrates its world premiere at interpack in Düsseldorf. The machine, which has been developed from scratch, sets new standards for the efficiency of modern tablet presses. The other machines in the FE Series also impress with their unique performance data.



2022 With the FE CPS, Fette Compacting opens a whole new chapter for Continuous Manufacturing in tablet production. It is not only the most advanced industry solution for continuous mixing and dosing of raw materials. It also impresses with its design and usability.



Together to the Next

Pharmaceutical and nutrition manufacturers are facing a wide range of challenges: faster market launches, optimized processes, increased energy and material efficiency, and new, data-driven digital solutions are just a few examples of the areas of development.

At interpack 2023 in Düsseldorf, Fette Compacting will be addressing these topics and inviting visitors to the trade show to join us in taking a look into the future. The motto “Together to the Next” stands for open exchanges on all topics concerning tablet production.

Visitors to the trade show can look forward to these highlights at the Fette Compacting booths:

+ FE CPS: an ultra-compact solution for Continuous Direct Compression
+ i Series: all production machines of the new generation on a single stage
+ OSDi Solutions: innovative digital tools for production and training
+ EasyCare: handling of tableting tools in a safe and efficient overall system – on an exclusive booth (E04)

Fette Compacting at the interpack:
May 4-10, 2023
Hall 16, Stand B16 and E04

HEALTH AS A PRIORITY

All technologies and services involving tablet production serve a common goal: to improve health and quality of life for people around the world. More than ever before, this now includes sustainable management.

At Fette Compacting, sustainability is a fundamental part of our self-image and has been firmly anchored in our corporate strategy and organization since the end of 2022. This is reflected in the common purpose “together – for quality of life”, which unites and drives Fette Compacting employees worldwide.

From the world's first computer-controlled tablet press PT2080 in 1982 to the i generation with torque-drive in the early 2000s: Since 1948, the company has developed numerous innovations for an improving health-promoting solid production. But that has long since ceased to be enough. The technologies used and the company itself must also make their contribution to a future worth living in. Sustainability is becoming a central benchmark for all business activities. This, in turn, is no easy task in the globally positioned special mechanical engineering sector.

“Doing good is in our genes,” emphasizes Sabrina Reinsch, Corporate Sustainability Manager at Fette Compacting. “Our long-term success can only be secured by a corporate strategy which puts ecological, human and social aspects on a par with economic factors. The fact that economic goals and sustainability are not mutually exclusive is becoming clearer than ever nowadays. Long-term success requires a commitment to a good future.”

The pressure is increasing

The greatest driver is undoubtedly climate change, the consequences of which are becoming increasingly tangible. In order to counteract this global challenge, the number of political programs and regulatory provisions is constantly increasing. For manufacturing companies, such binding requirements increase the pressure to save resources, produce more efficiently, and document sustainability measures.

“Manufacturers are passing this pressure on to suppliers like us,” claims Sabrina Reinsch. “Many pharmaceutical companies have set themselves ambitious goals and have already initiated measures. Our customers expect the best possible solutions with which they can realize their own goals. That is also our ambition. As a family-owned company, we have a tradition of carefully considering the long-term consequences of our decisions. We treat the goals we set for our own production and for our customers’ operations with absolute equality. After all, they all contribute to the overall goal of a future worth living in.”

Systematic for the environment

One milestone along this route is represented by the environmental management system at the Schwarzenbek site, which was certified to the DIN EN ISO 14001: 2015 standard for the first time in 2022. Impacts on the environment are systematically recorded and reduced within the framework of environmental management. This standard specifies the requirements on an environmental management system, with which Fette Compacting can improve its environmental performance, fulfill legal and other obligations, and achieve its environmental goals. On this basis, the company has established a continuous improvement process with which it aims to achieve its environmental and climate targets.

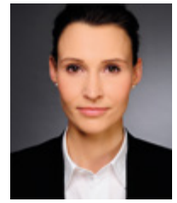
Last year, Fette Compacting conducted a corporate carbon footprint analysis for the first time, based on the current reporting standard of the Greenhouse Gas Protocol Initiative (GHG Protocol) and the DIN EN ISO 14064-1 standard. The aim was to evaluate the company’s consumption of resources in terms of its impact on the climate. The production site in Nanjing is also already working on its carbon footprint using a comparable system.

“Reducing industrial emissions is of great importance in limiting the global rise in temperature and mitigating climate change,” adds Sabrina Reinsch. “We are currently working on developing and implementing an environmental and climate strategy with the long-term goal of climate neutrality. Environmental management not only benefits the climate, but also our own business operations. Among other things, we reduce the costs of waste, materials and energy. This also reduces potential accident and liability risks.”

Fette Compacting has also been able to reduce energy consumption through the energy management system established at the Schwarzenbek site, for example through LED lighting installations, optimized compressed air lines, reduced machine idle times, energy-efficient new acquisitions, and employee training to raise awareness.

> **Sustainability is teamwork. We must work together to establish the topic with all its complexity in everyday business.**

Sabrina Reinsch, Corporate Sustainability Manager at Fette Compacting

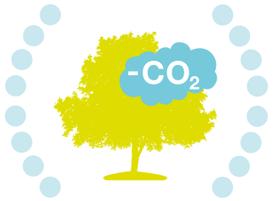


Technologies which are gentle on resources

Sustainability also includes the development of innovative products and services in order to design customer value-added processes to be even more sustainable and efficient. It is crucial that efforts to achieve increased sustainability are aligned centrally to tablet production as well as the company’s own manufacturing operations. This is where Fette Compacting can build on tried-and-tested innovations in all performance classes. These start with energy-efficient engine cooling systems in new plants and extend to modernization of older machine generations. In addition, with the help of service and consulting offerings, numerous other levers can also be moved to improve overall performance, reduce energy consumption, and minimize material losses.

The new i Series, for example, has set a benchmark for energy savings: the F10i, F20i and F30i models have succeeded in reducing energy requirements by up to 15 percent compared to similar machines. Add to this smart energy monitoring for recording power consumption in real time and saving it in the batch protocol. On this basis, users can determine the kilowatt hours required for each batch and derive precise forecasts for future energy consumption. Such monitoring is equally an effective sustainability measure and an important factor in cost analysis.





“Quality and sustainability of our entire supply chain are an important basis for our competitiveness,” says Sabrina Reinsch. “In particular, this is about demonstrable compliance with ecological and human rights due diligence obligations. A sustainable supply chain is a basic prerequisite for us to be able to provide information at any time on how we ensure social and ecological standards at our production sites and at our suppliers. Internally, we have already started to review the requirements for the Supply Chain Due Diligence Act in order to achieve the measures by 2024.”

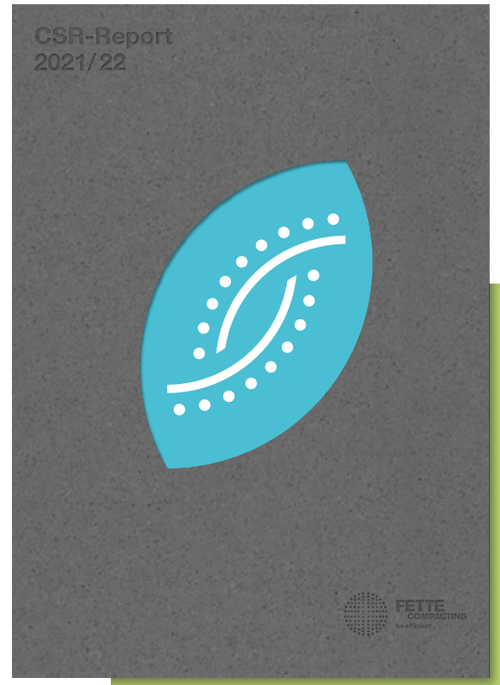
Hand in hand: sustainability and digitalization

Sustainability goes hand in hand with advancing digitalization, as Sabrina Reinsch explains: “Machine acceptance is increasingly taking place remotely, reducing travel and consequently the environmental footprint. This trend was born out of necessity during the corona pandemic and has since led to success in many cases.”

Fette Compacting has also launched several smart tools in recent months for optimizing tablet production. Customers benefit in particular from the apps from OSDi Solutions which are more data-secure and user-friendly. These solution-oriented applications mean it is possible to optimize the productivity of machines and systems as well as extend their useful lives.

A comprehensive task

“Our strategic goal is to make Corporate Social Responsibility an integral part of the company and anchor it equally in all business processes,” continues Sabrina Reinsch. “Sustainability is teamwork. We must work together to establish the topic with all its complexity in everyday business. In doing so, Fette Compacting is focusing sustainability management on the issues that are crucial to the company’s success and to meeting global challenges. The focus of our activities shows that we understand sustainability as a comprehensive process. The fields of action of economy, ecology, people and society provide the orientation framework for our value-based corporate management. We aim to continuously improve in these areas with targeted projects and strategic measures. I am very excited about this task because it is great to experience how the topic of sustainability has finally got to where it belongs: at the heart of the company, namely in the corporate strategy.”







CSR action priorities at Fette Compacting:

1. Economy
+ Sustainable products and services
+ Product responsibility
+ Sustainability in the supply chain

2. Ecology
+ Energy and climate protection
+ Waste
+ Water

3. People & Society
+ Attractiveness as an employer
+ Leadership and collaboration
+ Education and development
+ Health and safety
+ Social commitment

4. Corporate Management
+ Corporate Governance
+ Compliance

CONVINCING ACROSS THE BOARD

A pharmaceutical company producing over-the-counter medicines for the global market conducted product trials with the new FE CPS (Continuous Processing System) dosing-mixing unit at an early stage. Now this manufacturer has opted for several Continuous Direct Compression lines from Fette Compacting.

“Our long-standing partner wants to continue to help people take responsibility for their own health and the well-being of their family members,” emphasizes Nicolas Walter, Application Specialist Continuous Manufacturing at Fette Compacting. “This includes medications that enable the treatment of minor illnesses as needed, such as colds or gastrointestinal complaints.”

In search of simplicity

To ensure the success of this division for the future, the company tested various new ways of producing tablets – with a clear favorite, as Nicolas Walter adds: “First and foremost, it was a matter of finding simplified formulation and processing techniques. Our partner had been convinced of the Continuous Manufacturing process for some time because of its numerous process- and quality-related advantages. Up to that point, the only thing missing was the right set-up for large-scale tablet production.”

This is where the experts at Fette Compacting come in: they launched the compact and flexible FE CPS dosing-mixing unit in summer 2022. Together with a tablet press, this process unit forms a comprehensive Continuous Direct Compression line, thereby setting new standards in efficiency, quality and simplicity in continuous pharmaceutical production.



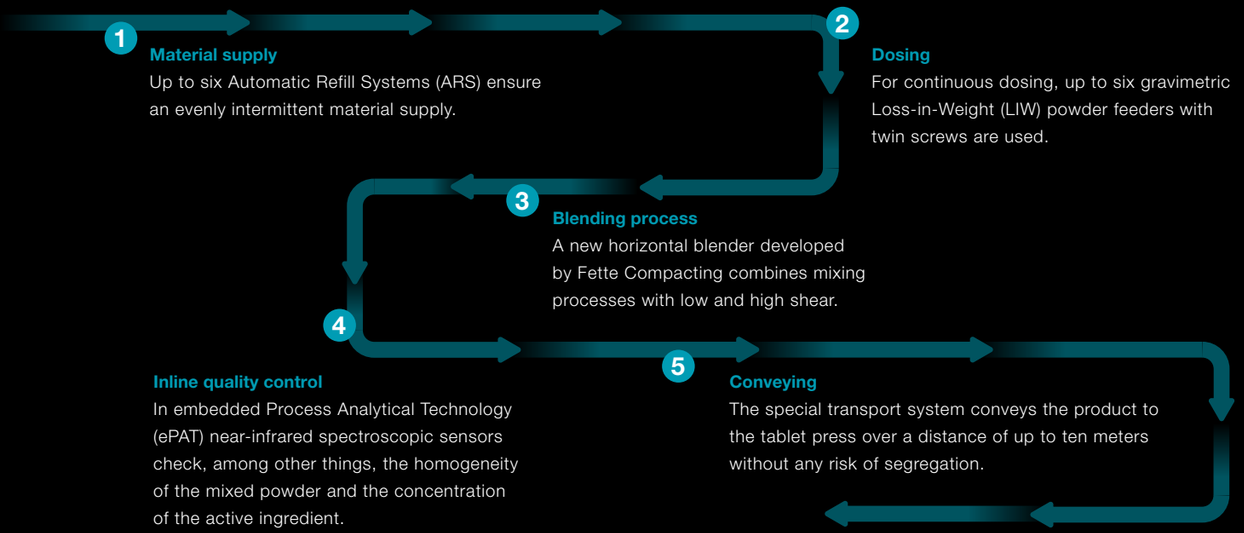
Nicolas Walter, Application Specialist Continuous Manufacturing at Fette Compacting, during a workshop on the dosing of demanding raw materials.



Higher throughput

In combination with the FE55 and the operating terminal, the FE CPS forms a complete Continuous Direct Compression line. It processes a wide variety of powdered initial substances with throughputs ranging from about five to 200 kilograms per hour.

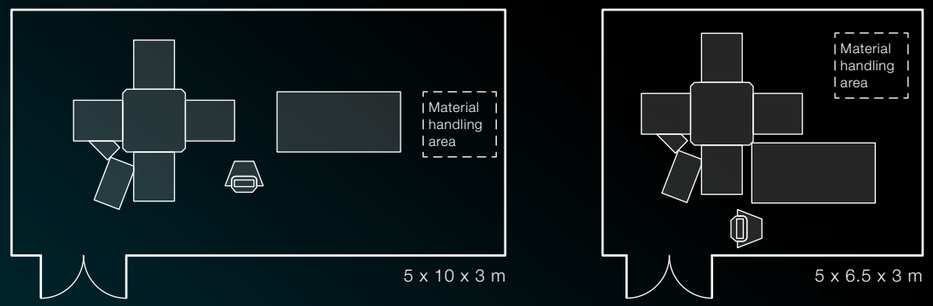
“Even before the world premiere, our partner was keen on testing the FE CPS extensively,” recalls Nicolas Walter. “This early cooperation can be attributed to our trusting collaboration over decades. As a result, the manufacturer took a close look at the prototype of the FE CPS at our Belgian site in Mechelen as early as the end of 2021. Particularly the combination with the FE55 tablet press and the central operating terminal for both process units proved optimal for the requirements.”



Flow regulating agent: not necessarily a must
The product trials were to demonstrate the extent to which the FE CPS is suitable for two important OTC medicines. “The goal was to get by as far as possible without interruptions as in batch-to-batch production,” explains Nicolas Walter, “as well as without upstream processes such as wet or dry granulation. It was decisive that we achieve a consistent product quality while simplifying the formulation. The Direct Compression line complied with this demand in several trials. It even proved its capability of simultaneously processing various initial substances without adding a flow regulating agent.”

Regulating agents which change the flow properties of powders are not only an additional cost factor – they also pose a regulatory issue. The frequently used silicon dioxide in particular is increasingly coming under the scrutiny of health authorities, as it is based on nano particles and can have impacts on health under certain circumstances. It is therefore possible that such admixtures may no longer be used in the future. The FE CPS test runs confirmed that a flow regulating agent is no longer necessary at all if the process is appropriately arranged and gently processed.

Installation: suitable for existing production facilities
A decisive role was also played by the plant’s compactness, as Nicolas Walter adds: “The test scenarios for a location in Germany showed that the line can be well-integrated in existing production facilities. The dosing-mixing unit only requires minimum space beside the tablet press or, an as alternative, in an adjacent room. Conversions for two-level installation are completely eliminated.”



Compact plant design: The installation of the dosing-mixing unit, tablet press and operating terminal is possible on only one level in an existing facility.

> **“All in all, the technology enabled us to present a turnkey overall solution for Continuous Manufacturing. Our partner has great confidence in the technology and the expertise behind it.”**

Nicolas Walter, Application Specialist
Continuous Manufacturing at Fette Compacting

Furthermore, the combination with the FE55 rotary press was advantageous as this high-performance tablet press features three compression stations instead of two, for example. This enables a longer dwell time at lower pressure and thus gentler processing of formulations. Add to this the variable throughputs ranging from around five to 200 kilograms per hour, which means the plant can be used flexibly for a variety of different scenarios: from research and development through up-scaling to large-volume production. Depending on the respective application, several near-infrared spectrometers ensure highly-efficient process analysis in real time, thereby guaranteeing consistent quality control. Easy operation of the line as a whole via a central HMI (Human Machine Interface) was also a key criterion. Many operators are well-versed in the intuitive control of the tablet press and can quickly familiarize themselves with the additional functions for dosing and mixing.

“All in all, the technology enabled us to present a turnkey overall solution for Continuous Manufacturing,” says Nicolas Walter with satisfaction. “Our partner has great confidence in the technology and the expertise behind it. This is ultimately the reason why they opted for several lines at once.”



If you would like to find out more about Continuous Manufacturing with the FE CPS, further information and contact options are available here: www.fette-compacting.com/en/products-technologies/continuous-manufacturing/fe-cps

ON THE WAY TO A GOLDEN BATCH

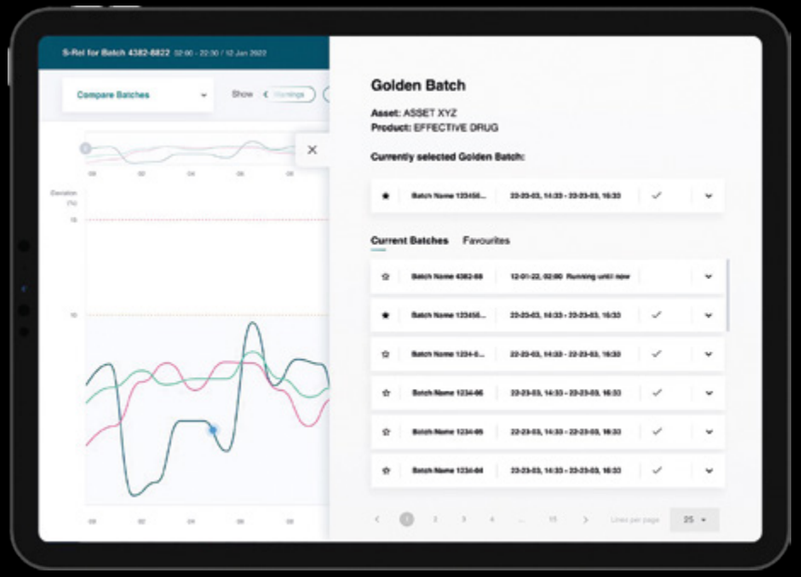
Do the machines work the way they are supposed to? Does the current batch meet the requirements? The new ConditionMonitor app from Fette Compacting records and visualizes the condition of each tablet press. With the help of numerous data points, it paves the way to optimal production.

Availability, performance and quality: the web-based ConditionMonitor application helps employees to maintain a comprehensive overview of their production. The new tool from Fette Compacting's digital division Oral Solid Dosage intelligent (OSDi) is currently in the beta phase. It records real-time data from all connected machines, visualizes it on an intuitively operable dashboard, and thus makes it more easily accessible.

"The software offers an overview of central production parameters – at all times and in any place, thanks to mobile end devices," explains Sven Vulp, Program Owner Dynamic Data at Fette Compacting. The dashboard shows all relevant production features, providing clear access to machine data. Each parameter has its own widget, from which operators can switch to the detailed view with a single click.

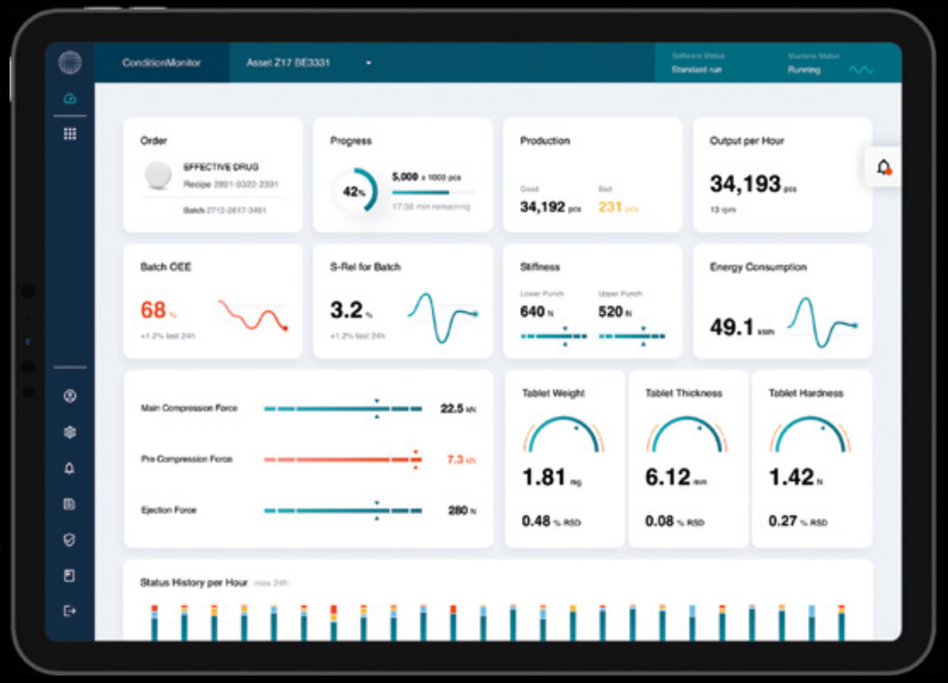


ConditionMonitor



With the visualization of an ideal-typical batch production, selected parameters can be compared and benchmarks can be set.

The ConditionMonitor displays the KPIs for each tablet press connected. Clicking a widget opens the deep-dive view for the respective parameter.



Past and future data
The ConditionMonitor also compares current and historical data. This enables users to identify deviations at an early stage and respond to them before production downtimes occur. The data from the ConditionMonitor forms the basis for further analyses. With the help of artificial intelligence or machine learning, the app then derives targeted recommendations for action.

Threshold values are defined within the tool and color-coded to enable them to be recorded even more quickly. In addition, it is possible to define an ideal-typical batch production – the so-called golden batch – for the selected parameters and thus set benchmarks for production. “On request, we support our customers in creating a database for long-term analyses so that relevant deviations become visible immediately. We also provide recommendations for threshold and limit values,” claims Sven Vulp.

Key to intelligent maintenance
The app forms the basis for integrating further digital applications to even predict production and machine data in the future. This enables customers to change their maintenance strategy – away from fixed-time maintenance, where maintenance is always carried out at a specific time, to condition-based maintenance, which is based on the actual condition of the machines. The goal is to improve machine performance. The software predicts wear at an early stage and thus minimizes failures with downtimes. It also helps maintenance staff to optimally plan and carry out their maintenance work.

The ConditionMonitor is the key to a digital eco-system consisting of various data-based applications with which users can sustainably improve their machine performance and maintenance strategy.



For more information on all digital tools from OSDi, click here:
www.fette-compacting.com/en/products-technologies/osdi-solutions

THE TABLETING PLATFORM

For decades, the i Series has stood for efficiency and quality in tablet production. To ensure that this remains the case in the future, engineers have merged several innovations with the new i Series. Jörg Gierds, Senior Product Manager at Fette Compacting, explains what users can look forward to.

Mr. Gierds, the generation change in the i Series is in full swing. How are things going with it?
As you can imagine with such a complex project, we have our hands full. But we have already reached several milestones: a start was made four years ago with the F10i single rotary press, which was then followed by the F30i double rotary press. Last year, we closed the gap in the form of the F20i all-rounder. And now we are proud to be able to present all three production machines on the world stage at interpack 2023.

How have the new tablet presses been received by producers to date?
We adopted a collaborative approach at an early stage and developed the new i generation together with our customers. In concrete terms, this means that we specify the requirements with the customers until all the details have been clarified. This resulted not only in a series of new tablet presses, but above all in a user-oriented technology platform on which the mechanical and electronic components are based. This platform has proven itself with manufacturers with very different requirements – from global pharmaceutical companies to start-ups in the nutrition sector. Today, the F10i and F30i are in production operation at several companies. The latest F20i already attracts great interest, so we expect the first projects within the next few months. In the project business for pharmaceutical machines, the path from inquiry to order is relatively long, as a User Requirements Specification (URS) is very extensive. Our colleagues comment on all the individual URS points. This is followed by the negotiations and conclusion of the contract.



With the latest addition, the all-rounder F20i, production machines of all sizes are available.



Interview partner Jörg Gierds together with colleagues from Fette Compacting during a presentation. From left: Florian Friede, Jochen Gäth, Jörg Gierds, Korvin Asmussen, Doreen Dunst and Christian Pehlke.

“We adopted a collaborative approach at an early stage and developed the new i generation together with our customers. This resulted not only in a series of new tablet presses, but above all in a user-oriented technology platform.”

Jörg Gierds, Senior Product Manager at Fette Compacting

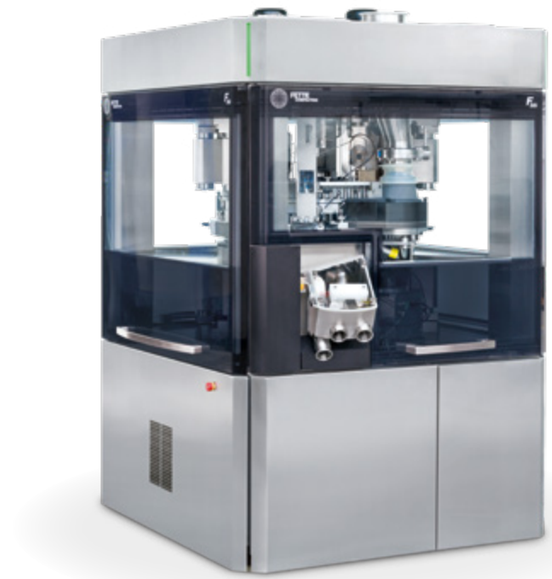
What kind of effort will users have to put in during a changeover?
I need to elaborate a bit here: in terms of the platform, we have designed the new models to be system-compatible across all generations. This means that all process-related modules are the same as those of the classic i Series, or at least very similar.
One of the concerns of pharmaceutical manufacturers is the costly re-validation that goes hand in hand with a change in production technology. However, our experience shows that the system compatibility of the new i Series significantly reduces the efforts associated with validation and qualification. We are no longer talking about weeks here, but days.



Then both generations can be operated in parallel for the time being?
Definitely! This is in fact essential, as the tablet presses in the classic i Series are running at full capacity worldwide and are expected to continue doing so for some years to come. If manufacturers with larger machine parks initially want to install only individual tablet presses of the new generation, they can do so at any time. For example, with minor modifications they can take over the die or segment rotors from their existing stock. In parallel operation, customers can then also see for themselves the many innovations with which we have equipped the i Series for the future.

What innovations do you mean? Could you identify three primary aspects?
First of all, I mean the innovative design on which the entire platform is based. This includes, for example, a high-performance multi-format tablet chute, an optimized rotor change system, and dust-tight basic equipment for increased operator protection. Secondly, pharmaceutical and nutrition production is increasingly focusing on the aspect of sustainability. As an exemplary step in this direction, all new models feature intelligent energy monitoring. Among other things, it records electricity consumption and enables precise forecasts of future energy consumption – with a savings potential of around 15 percent. Thirdly, there is the field of digitalization. We refer to the new i Series as “digital ready,” which means it avails of the latest technical connectivity right up to pharmaceutical production 4.0. The platform interfaces are suitable for a Manufacturing Execution System (MES) and the Internet of Things (IoT). This is complemented by apps from OSDi, which allow mobile monitoring of production and in real time.

This sounds innovative but also complicated. You mentioned less effort associated with qualification. How do you bring the two together?
For example, via the Human Machine Interface. We have designed the operating system so intuitively that even less experienced personnel can effortlessly control, monitor and document the tableting processes. As a digital helper, a Workflow Operation Wizard guides users through the procedures step-by-step and in an easy-to-understand manner. Another decisive factor is process reliability, which we have once again raised to a new level and thus reduced the risk of operator errors to an absolute minimum. This is the aim of the optional Radio-Frequency Identification (RFID) function, for example. This contact-free transceiver system allows components to be automatically identified by the machine and matched with preset recipes. In addition, the new i Series can be easily scaled so that mechanical settings can be modified exactly according to recipes. Basically, we are talking about much more than a platform: we’re talking about the symbiosis of operator and tablet technology into a safe and highly-efficient unit. This is the path we are consistently pursuing.



Highly-efficient
The “i” in the new generation stands for innovation, integration, intuitive operation, and intelligent product design. More information and contact options available here: www.fette-compacting.com/en/products-technologies/tablet-presses/i-series

HYGIENE WITH PRECISION

In order to ensure long-term durability and performance of the tableting tools, a pharmaceutical-chemical company has opted for cleaning systems from the EasyCare range.

The demands placed on tableting tools are continually increasing. “Our punches, segments and dies must be able to withstand enormous loads and be easy to replace and clean according to high hygiene standards,” explains Carmen Ackermann, Senior Product Manager at Fette Compacting. Companies that have been working with Fette Compacting for a long time know that the tableting tools from the company’s own production in Schwarzenbek are built precisely for such demands. However, it is also crucial how the tools are maintained throughout their entire product life cycle.

One example: an international pharmaceutical and chemicals producer uses tablet presses and tableting tools from Fette Compacting at its main site. A main cleaning process is scheduled once a week for the machines and tools. In the past, this involved cleaning the tableting tools with the help of stock washers and, if necessary, manually. Trained technical supervisors then had to check the set-up and cleaning steps individually. This was an altogether time-consuming process for which Fette Compacting, together with cooperation partners, has developed an efficient alternative called EasyCare.

Handling and care go hand in hand

EasyCare is a modular handling and care system for tableting tools. An important element is represented by the tool box system patented according to the TRI.EASY design principle, which allows punches, segments and dies to be transported, stored and cleaned in a protected manner. The trays of the cases fit exactly into a fully-automatic cleaning system of our partner ARUNA. In this so-called surge cleaning process, the tools are cleaned with cleaning and corrosion protection agents from Borer Chemie without leaving any residues. In addition, there is the option of automatic polishing, for which a machine from our partner nortec is available. Furthermore, the tool management system PartSite® enables simple system-supported management of tools and machine parts. With these Good Manufacturing Practice (GMP)-compliant-components, Fette Compacting offers a complete solution for the safe and efficient handling of tableting tools.

Due to the general switch to fully-automatic cleaning in various areas of production, the pharmaceutical company decided to purchase two cleaning machines. During a visit to Schwarzenbek, the demonstration machine was thoroughly convincing. “Above all, the precise coordination between ARUNA and Fette Compacting in the design of the wash racks and the joint development of new components with optimized cleanability were decisive factors for the customer,” says Carmen Ackermann. “In the future, they want to have practically all machine parts reprocessed in the cleaning systems – even those that are currently still cleaned manually.”

Shorter and easier cleaning

Following conclusion of the validation phase, the new cleaning systems were commissioned in early 2023. Several test runs had already been carried out to determine the recipe for punches and segments. The company expects that surge cleaning will shorten cleaning times and reduce the number of cleaning steps. The large loading volume and two-level wash racks offered by the machines significantly reduce the number of loading cycles.

The producer of solid formulations is also testing the trays for segments and bellows, whereby operators receive technical support from Fette Compacting.

“Whether maintenance, troubleshooting, software updates or mechanical changes: service technicians from our partner company provide support at every step, training our customers’ staff and helping to optimize the cleaning process,” emphasizes Carmen Ackermann.

And even more progress is in the pipeline: transport carts that can be lowered, thereby facilitating the loading process for employees are in the design phase at ARUNA. New storage racks could soon significantly reduce the space required for wash racks and transport carts. And thanks to EasyCare, the need for wash racks is already reduced, saving further space.



ARUNA’s cleaning machines significantly reduce the cleaning time of machine parts and tableting tools while also saving space.



> **Service technicians from our partner company provide support at every step, training our customers’ staff and helping to optimize the cleaning process.**

Carmen Ackermann, Senior Product Manager at Fette Compacting



UP AND RUNNING SMOOTHLY

The nutraceutical market is moving, and Faun Pharma from Norway is taking advantage of the opportunities. As the oral solid dosage market grows, Faun Pharma's investment in tablet production grows as well. With equipment from Fette Compacting, the company is set up for success.

In 2021, the European nutraceuticals and supplements market was valued at USD 61.8 billion. And it is expected to grow at a rate of 5.8 percent until 2030. In this expanding market, vitamins are estimated to hold a major share. The key drivers for the upswing are the rising prevalence of vitamin deficiencies, increasing health and wellness trends, and awareness about preventive healthcare.

Feel good, look good

Faun Pharma, a manufacturer of dietary supplements, health food and sports supplements, aims to meet the growing demand. As a contract manufacturer without its own brands, the company's customers are well-known, global companies. Their products are sold mainly in Europe, but several are also distributed to other parts of the world.

For its tablets, Faun Pharma uses only natural, active raw materials and additives. The portfolio includes over 60 products formulated with vitamins, minerals, and other active ingredients. With a focus on sun-deprived Scandinavia, vitamin D supplements play a major role. But probiotics, omega oils, and other supplements are also becoming increasingly popular.

A solid relationship

Faun Pharma has been producing its tablets on Fette Compacting tablet presses for almost twenty years. The first tablet press was a 2090i, the latest is a 2200i. In their two-shift system, both tablet presses are in continuous operation to produce the entire portfolio. For Valborg Godal Vold, General Manager at Faun Pharma AS, quality is the most important thing: "The two machines, together with the tableting tools (punches and segments), are ideal for our ingredients, as Fette Compacting maintains a strict standard for suitable materials. All machines have features to monitor the uniformity of tablet compression forces in relation to tablet weight and cylindrical height. It ensures consistently good quality. In addition, the advanced monitoring software keeps our production running smoothly."

Since Faun Pharma offers a wide variety of products, the production lines must be easy to clean and fast product changeovers must be possible. In addition, batch-to-batch differences must be avoided. "We have regular maintenance service by technicians from Fette Compacting and the partner Gotapack, who perform on-site inspections and callibrations as well as maintenance recommendations," says Valborg Godal Vold. "The 2090i has an automatic turret removal and assembly function that saves time during changeovers. In any case, the machine also runs very steadily."

Turn on and get started

With the recent acquisition of the tablet press 2200i, Faun Pharma now has the capacity to expand. And future collaborations are already planned: "We are very satisfied," emphasizes Valborg Godal Vold. "Fette Compacting is a very reliable and trustworthy supplier, who really 'walks the walk'. As one of our operators said: When you work with the tablet presses from Fette Compacting, all you have to do is turn it on and it's running."

Praises like this are the reason why Frank Scheefe, Area Sales Manager at Fette Compacting, and his colleagues work hard to provide the tablet presses in close coordination with the customer. This includes not just on-time delivery and continuous follow-ups, but also the actual involvement of the customer in the Factory Acceptance Test. "Close collaboration helps us to provide the best result for the customer. We enjoy working with everyone at Faun Pharma and the results speak for themselves," says Frank Scheefe.



The production and technical team from Faun Pharma was involved in the project and is also part of the day-to-day operations. From left to right: Joaquin Tacardon, Hans Kristian Knudsen, Henrik Solhaug.

Faun Pharma was founded in 2001 and acquired by Zinzino AB, a global direct sales company, in 2014.



FROM MINERAL TO TABLET

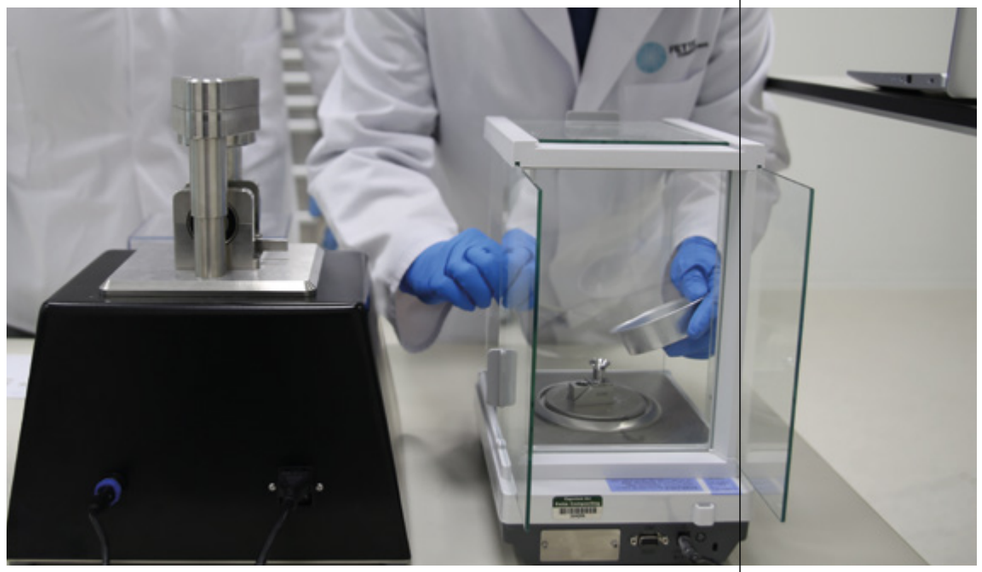
Based in northern Germany, MAGNESIA GmbH distributes high-quality minerals for solid formulation products. The specialist uses the F Lab powder analyzing unit for a product development – with multiple possibilities.

For more than 40 years, MAGNESIA has been supplying mineral raw materials for manufacturers of nutrition supplements, food, pharmaceuticals and cosmetics, as well as for users of technical applications. Using Fette Compacting's F Lab Powder Compaction Analyzing Unit (PCA unit), the company has carried out extensive data analyses for a new product for the first time.

Versatile analysis device

The F Lab is suitable for a wide variety of applications: from feasibility studies through quality control to trouble-shooting during ongoing production. As an analyzing device, it can be used to examine formulations in terms of their compaction process. Users can test raw materials under special conditions and compare various formu-lations with each other. The compact unit even detects variations in the mineral mixture, for example due to a change in composition. Accordingly, it offers some decisive advantages during the process of developing new products.

The analyzing unit works fully automatically and is available in two versions: the F Lab 5 has a pressing force of up to five kilonewtons and is suitable for tablets up to ten millimeters in diameter while the F Lab 10 manages up to 10 kilonewtons for tablets up to 15 millimeters. The associated program for automatic data evaluation and presentation can be combined with other analyzing devices according to customer requirements.



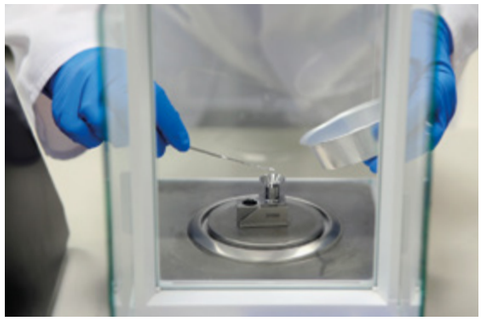
With the F Lab PCA unit and other laboratory equipment MAGNESIA investigates new formulations in the simplest way imaginable.

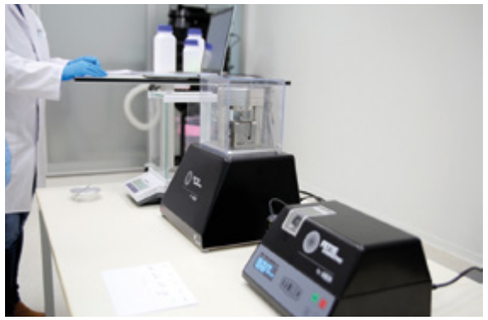
Data analysis in practice

The analysis process couldn't be easier: the operator weighs the powder required for the tablet, fills the die, and starts the process via the computer program. It records the tablet properties such as thickness, mass, diameter and hardness. During the measurement, the program calculates a variety of parameters: ejection force, breaking strength, elastic recovery, and more. Via automatic visualization with graphs, even less specialized personnel can clearly see which powder mixtures have the best tableting properties.

Customers benefit from easy handling as operators can be swiftly trained on the device. Automated analysis of the compacting process means that formulation develop-ments can be optimized at an early stage and in a resource-saving manner. This leads to shorter scale-up and times-to-market, better understanding of the product, and the avoidance of production errors. The F Lab also saves on resources as comparatively little powder is required for the tests. If a formulation needs revising, the F Lab is capable of detecting this before resources have been integrated in production. Apart from the lower material costs, this also ensures shorter downtimes by production machinery. Users can also use the device in parallel with the ongoing process for troubleshooting.







The automated analysis enables formulation developments to be optimized in a resource-saving manner.

MAGNESIA





Sonja John, Head of Product & Application Management at MAGNESIA, Markus Cording, Managing Director at MAGNESIA, and Doreen Dunst, Application Specialist at Fette Compacting.

With the F Lab 10, we can provide a quick statement about our products with minimal material input and save time in product development.

Sonja John, Head of Product & Application Management at MAGNESIA

In operation at MAGNESIA
For MAGNESIA, the question was which of four different mineral granulates of the same raw material is best suited for tableting. Within this scope, it was also necessary to identify possible weak points of the different granulates and to test different parameter settings, such as compression force.

The extensive and in-depth analysis with the F Lab enabled MAGNESIA to make the right, data-based decisions in product development. The tool was able to show graphically which granulates would work best under which parameters and properties in mass production.

A trial at Fette Compacting in Schwarzenbek now also enables MAGNESIA to compare raw material qualities and suppliers in a cost-efficient manner. When defects occur, the F Lab users can quickly rule out the possibility that they originate from their own product. This is a decisive factor in long-term quality assurance. In addition, the F Lab extends its knowledge about the company's own products and their properties. This is a major advantage when talking to customers.

F Lab Series: first understand, then produce
Quality by Design (QbD) states that high-quality products can only be manufactured with a sufficient understanding of products and processes. The F Lab characterizes the compaction behavior of powders down to the last detail. This knowledge can be used throughout the product life cycle – from development to quality control.



1st analysis step:
With the F Lab 5 and F Lab 10, users can compact and analyze formulations fully automatically.



2nd analysis step:
Tablet properties are measured using a balance and a micrometer.



3rd analysis step:
As a further system component, a breaking strength detector tests the tablets for stability.

NEW PARTS WITH MAJOR IMPACT

Tablet presses age not only through operation. The technology they contain can also “get on in years.” In order to keep older machines up to date, modernization of individual components is recommended in many cases – with far-reaching benefits.

Nils Freyher, Area Sales Manager at Fette Compacting, and his colleagues help companies to modernize outdated components in good time. Because a timely change prevents unpleasant surprises: “The delivery time for replacement of an outdated Fill-O-Matic drive is currently twelve weeks,” reports Nils Freyher. “We point out possible consequential risks as part of our modernization advice and recommend replacing the relevant component with a more modern version. This is then usually also available much faster.”



Nils Freyher, Area Sales Manager at Fette Compacting.

To protect companies from similar inconveniences such as long delivery times, Nils Freyher and his colleagues actively broach the subject with customers. They are supported in this by a small but very helpful tool: the Upgrade Cockpit. This database lists all of the customer’s machines with their years of use and the status of all components. A traffic light system helps to quickly identify the critical components. The operating system is a typical “case of red” for machines that are around 20 years old. It is possible that this still performs solidly outside of network structures, but companies do not usually have a major risk factor in mind – especially since they often only have small IT teams: “Microsoft already discontinued support for Windows XP in 2019, for example, and for Windows 7 in 2020. That means there will be no more updates, bug fixes or other support. For customers, this is particularly relevant when a software problem suddenly affects a entire series of machines,” says Nils Freyher about the software-related risks.

Minimize downtime risks with little effort

The solution is conceivably simple: basically, all that is required is an upgrade to Windows 10, possibly also to suitable, more modern hardware. The software upgrade can be carried out by the customer’s own IT department. If required, the Fette Compacting team can also handle the entire process.

It’s a similar situation with the safety cycle in which the tablet press automatically switches off, for example, as soon as an operator opens the window flaps. Here too, the original manufacturer has announced discontinuation of support for certain machine types. Companies are advised to replace the respective components sooner rather than later.



Brought up to date:
View into the technical room of an exemplary tablet press before (left) and after modernization (right).

The strength of a comprehensive approach
“Ultimately, it’s all about smooth operation. And companies can often afford this at relatively low cost in relation to the risks,” emphasizes Nils Freyher. This is all the more true as the modernization of many components is accompanied by a number of other advantages. In the newer Fill-O-Matic drives, for example, the control electronics are integrated into the motor, thus reducing the load on the control cabinet. The modern main drives are also significantly more efficient and go hand in hand with lower power consumption. This is becoming increasingly important in view of high energy prices and the energy transition itself.

In addition to such optimization topics, Fette Compacting also provides support with innovations in the area of IT and data science. This includes, for example, the new ConditionMonitor from OSDi, which is a web-based application that displays current and historical machine data. This makes it possible to identify deviations and indications of any problems at an early stage (see article on page 14).

“Our strengths lie in this comprehensive approach,” claims Nils Freyher. “We consider our customers’ machines and processes from various perspectives. This allows us to ensure smooth, efficient and modern tablet production which is equally flexible and extensive.”



The Upgrade Cockpit provides a quick overview of the plant status. For example, it indicates in due time when it makes sense to upgrade the operating software.

FROM THE WORLD OF FETTE COMPACTING

“Distinctive, progressive design language”

To ensure maximum safety and efficiency in tableting, simple machine design is more important now than ever before. One example of this is the FE CPS dosing-mixing unit, which was named “Winner Excellent Production Design/Industry” at the German Design Award 2023.

The jury explained its decision as follows: “For years, Fette Compacting’s well-designed systems have impressed with a distinctive, progressive design language that perfectly embodies the demand for efficiency, precision and performance, while at the same time offering maximum user-friendliness. The fact that this also applies to the design of the Continuous Processing System with the FE CPS is therefore not at all surprising.”



GERMAN DESIGN AWARD WINNER 2023



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