

**FETTE
COMPACTING**
be efficient

WHAT'S NEXT?

FETTE COMPACTING MAGAZINE 2011

**Tomorrows'
pharmaceutical
production**

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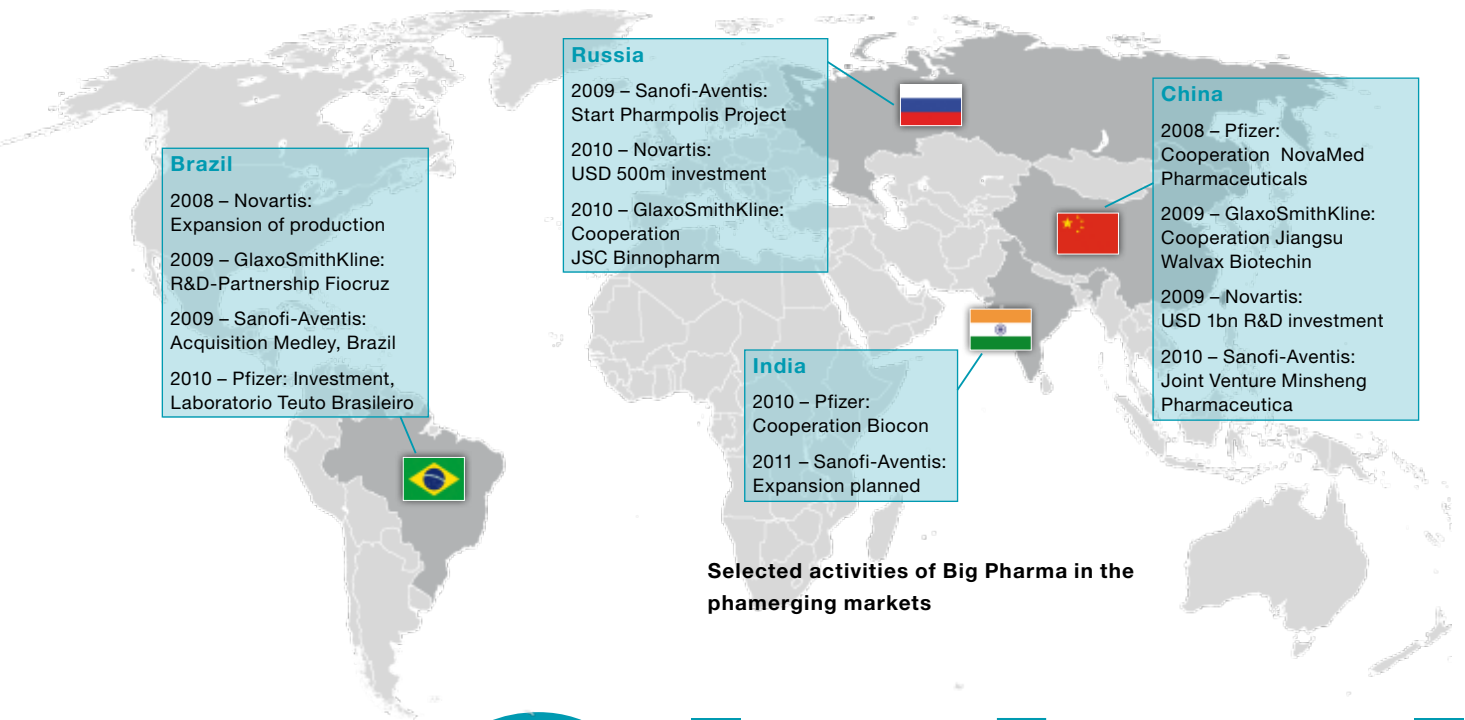
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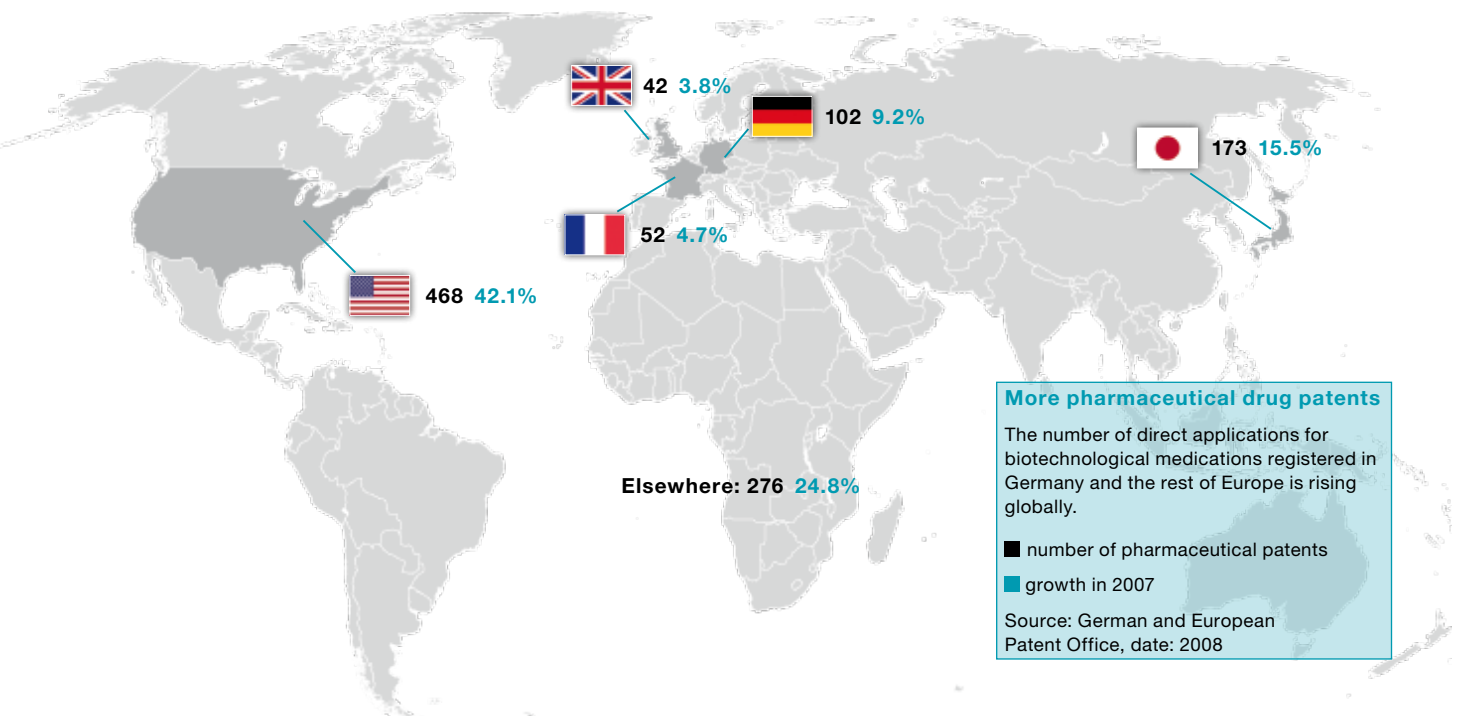
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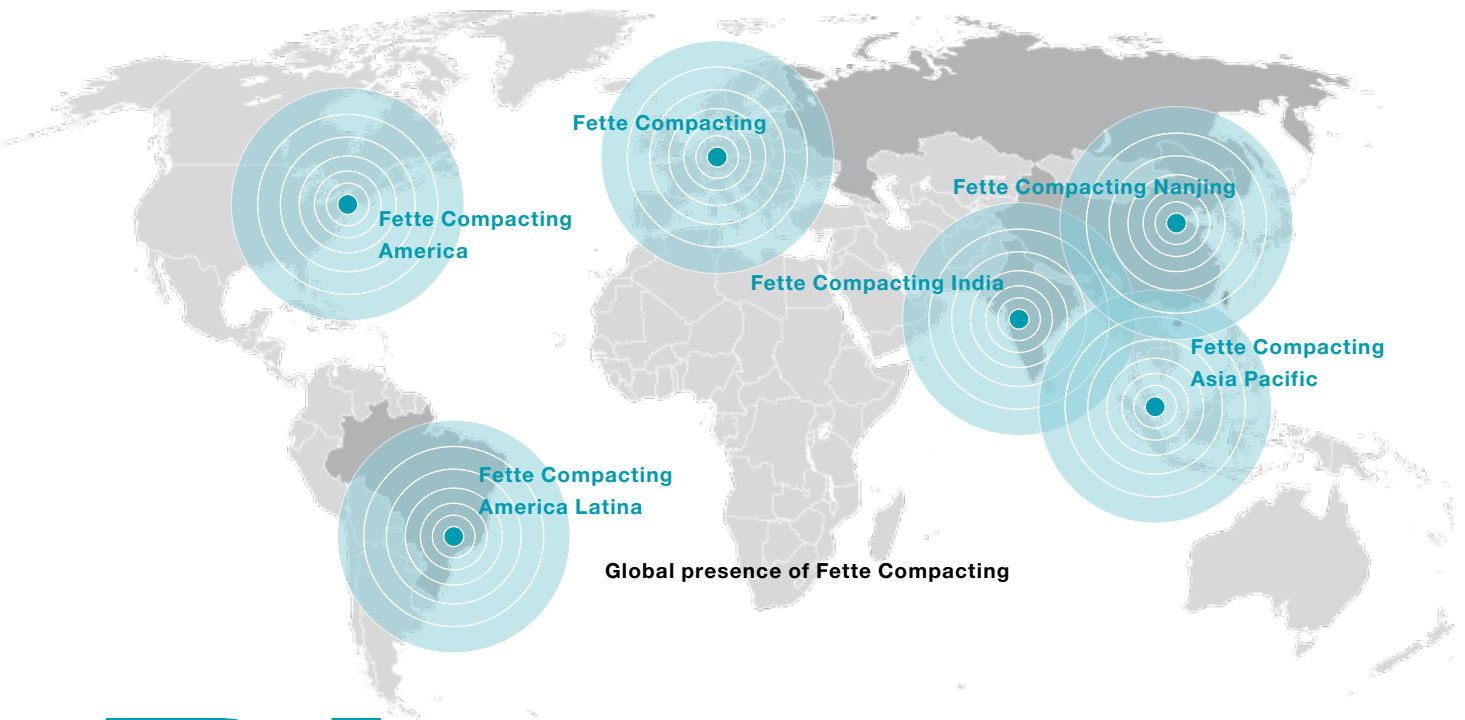
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Pharma.

Editorial



Dear Reader,

Over the coming years, billions of people worldwide are to gain access to basic medical care for the first time – a truly immense and inspiring challenge for all those concerned. At the same time, patients' needs and cost pressures are both increasing in established markets. This

means that the industry will have to produce more, more flexibly, faster and, above all, at lower cost – in a nutshell: production will have to become more efficient.

As technology leader and world market leader in tableting technology, we can and want to influence this development in the interests of our customers. With the FE55 we are presenting a completely new generation of machine that will set new standards for efficiency in the tableting field. Carefully targeted investments

are enabling us to expand our range of services and position ourselves as consultants on overall equipment effectiveness in the field of pharmaceutical production. And finally we shall be intensifying our activities in the new growth markets to further improve our local support for users. These developments are also reflected in our new corporate logo and motto "be efficient". This maxim represents the promise we make to our customers – and the goal we have set ourselves.

We would like to inform you about these and other subjects in our magazine *What's Next?* and invite you to take a look at the future of pharmaceutical production with us.

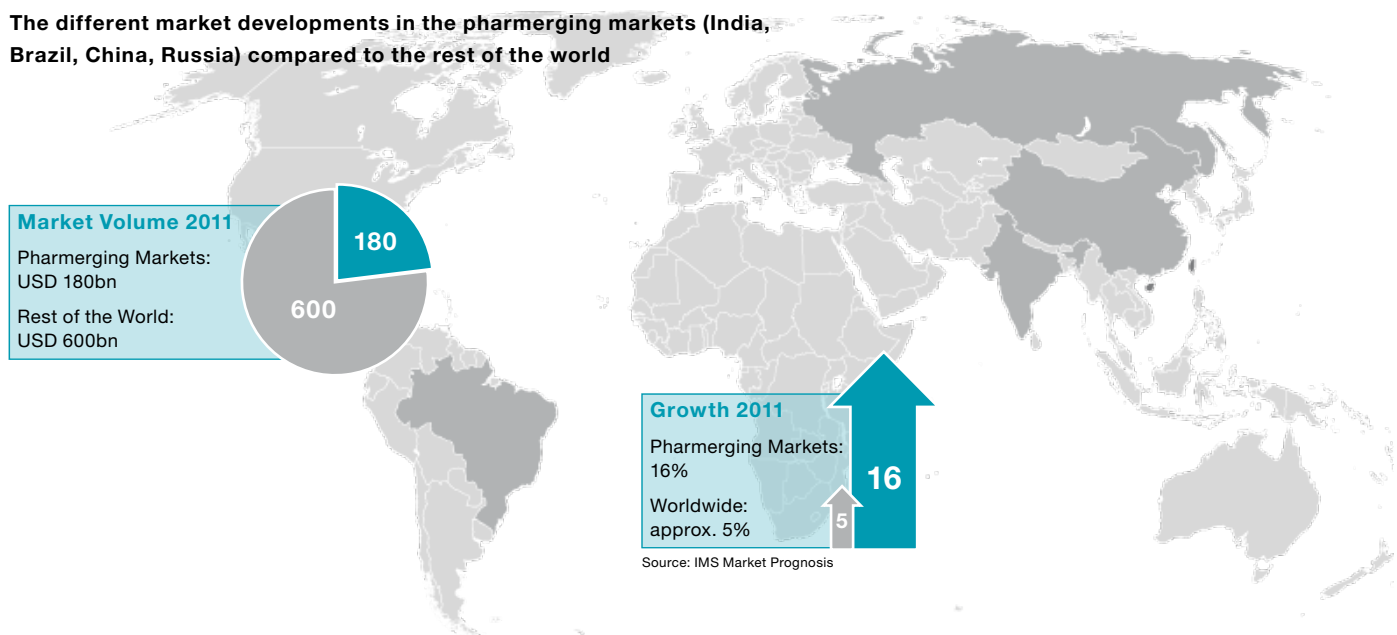
We wish you an interesting and enjoyable read.

Olaf J. Müller,
CEO Fette Compacting

Tomorrow's pharmaceutical production: efficient, holistic, global

The global pharmaceutical market is facing fundamental changes. While during the boom times companies were mainly concerned with growing faster than their competitors, recent years have been characterized primarily by enormous cost pressure. The future is also anything but rosy. Higher costs for the development and production of blockbusters, competition from pharmaceutical companies that produce in low-wage countries and competition from producers of generic drugs are the most important drivers of this development. The latest forecasts in *IMS Market Prognosis* also confirm that the era of unbridled growth is over.

The different market developments in the pharmerging markets (India, Brazil, China, Russia) compared to the rest of the world



According to the report, although the industry's global sales will increase in 2011 compared to the year before, this growth will be 5-7% less than many experts anticipated. Companies will therefore continue to be concerned about finding intelligent ways of improving efficiency. The "big players" in the pharmaceutical industry have recognized the signs of the times and already begun to reposition themselves. What has always been part of the business model of market leaders in other industries (e.g. Apple and Nike) will now also become a promising strategy for major pharmaceutical producers: they are focusing on core competencies, such as research and development and marketing, and working closely with highly specialized suppliers and service providers at all stages of the value creation chain.

New status of suppliers

The engineering industry presents an excellent example of the opportunities that this development offers the partners of pharmaceutical producers. The manufacturers of the equipment used in pharmaceutical production are no longer just "machine fitters", but are involved in the design of production processes from the very start. They know all their customers' machinery and also know how it can be used to the best advantage. In a nutshell: their extensive expertise makes them sought-after partners for pharmaceutical production because of the holistic problem-solving approach they can take.

After all, the cost-reduction potential in this area is enormous. According to a study conducted by Tetragon Consulting on behalf of VDMA, the average level of machinery utilization in 2006 was



In March, Fette Compacting became the first manufacturer of specialist machines for the pharmaceutical industry to open a competence centre in the Federal State of Goa in western India. Guests at the opening ceremony included the production managers of the largest pharmaceutical firms that produce in India.

more than 20% below the theoretically possible operating time of 24 hours a day. That is why in the future even greater significance will be attached to technological innovations that enable higher outputs per unit of time. What is more, this has to be achieved with the highest quality and reliability – and worldwide.

Pharmerging markets – growth through quality

“Worldwide” is also the cue for the second megatrend that will characterize the pharmaceutical industry over the next few years alongside the search for more efficient production processes. According to the IMS data, pharmaceutical markets in economically dynamic countries like China, Russia, Brazil and India will grow by an average of 15–17% in 2011 – in other words, roughly three times faster than the world market as a whole. The Indian market alone is expected to reach a sales volume of USD 50 billion by 2020, according to management consultants PricewaterhouseCoopers. Many of these markets are also profiting from increasing government spending on the health of their populations. The Chinese government, for example, intends to establish a basic healthcare system for more than 1.3 billion citizens by the year 2020. In these markets, efficiency is no longer only important for commercial reasons, but absolutely necessary in order to provide care for such huge numbers of people.

An additional and equally notable trend will be the harmonization of quality standards and expertise at the global level. The frequently cited “pharmerging markets” will play a key role in

this. Many companies in these countries no longer only produce for their domestic markets, but export worldwide. As a result, the times when pharmaceutical firms in Asia, for example, mainly purchased used machinery from Europe or locally manufactured equipment are now definitely over. Businesses with international aspirations work in compliance with FDA standards and organize production processes and their machines accordingly. In doing so, they are thinking not only about efficient production, but also about patients’ requirements. If you want to produce for the world market, your tablets have to meet western quality standards with regard to cosmetic characteristics. That requires “best-in-class” machines and appropriate expertise and local service.

This development represents both an opportunity and a challenge for companies in the specialized engineering sector. Fette Compacting has already taken the first steps towards exploiting these opportunities. In 2004, the company began setting up production in China. Recently, in March 2011, Fette Compacting became the first manufacturer of pharmaceutical equipment to open its own competence and training centre for tablet production in the western Indian state of Goa. This example is very likely to be followed as the major pharmaceutical producers are increasingly investing in pharmerging markets.

History: Traditionally innovative



The 1970s

The first fast-running tablet presses with exact proportioning for large batches

The 1970s. Men's hair became longer, the miniskirt was in fashion, and a movement had started in 1968 that would mark an entire generation. The decade was also crucial for the development of tableting technology. Fette Compacting developed the first fast-running presses with exact proportioning for large batches. It was this technical breakthrough that allowed pharmaceutical manufacturers to begin the mass production of tablets.



The 1980s

The world's first computer-controlled tablet press

The 1980s mark a transition from the industrial age to the information age. Availability of the first home computers such as the C64 or office computers such as IBM PCs contributed toward popularizing information technology. New technical equipment also established a foothold in everyday life: answering machines or even microwaves soon featured in most households. In tablet technology, Fette Compacting drove digitalization and presented the world's first computer-controlled tablet press with integrated process control. Unattended machine operation was made possible for the first time.



The 1990s

Exchangeable die tables and washable rotary presses

Europe was characterized by German reunification and the introduction of the euro during this decade. August 6, 1991 saw Tim Berners-Lee releasing the World Wide Web for general use. By developing digital mobile networks, individual communication gained speed. A breakthrough into the global age was also tangible in the area of tableting technology. Users demanded additional improvements in service and highly flexibility. Fette Compacting revolutionized the area of tableting in the form of exchangeable die tables for high-performance tablet presses, thereby significantly slashing product change times. And the washable rotary presses first presented at the end of the 1990s represented a step toward highly flexible production systems.



The 2000s

New capacity

The new millennium stands for high performance. Broadband technology speeds up the Internet, high-definition television becomes popular and renewable energy spreads in Europe. Fette Compacting also opens up new service areas. Furthermore, developments such as Fette Compacting's patented die table segments, the 110-station segment turrets for the FS12 punch and the tablet bypass system significantly raise machine performance.

Interview: Pharmaceutical companies should invest in quality

What are the main challenges of the future for pharmaceutical production?

Steffens: We will have a market – at least, in the richer countries – that is divided between generic drugs and highly priced innovative products. When it comes to generic drugs, we are observing a global concentration of production in fewer and fewer locations and increasing pressure on prices. There will be a need for integrated production lines here, preferably ones that work continuously and guarantee high quality at minimal cost through the application of automated in-line controls (PAT).

Innovative products are usually characterized by small batch sizes and increasing effectiveness combined with higher risks for production personnel and the environment. Here there will be increased demand for either small versatile machines that can be cleaned easily and safely or dedicated equipment only used to produce one product. If patient-specific drugs should one day come to the fore, new strategies will have to be developed with regard to variable dosages and the release of active ingredients.

In your opinion, which technological developments constitute milestones in pharmaceutical production?

Steffens: Since solid medicines, especially tablets, are by far the most common worldwide, I believe this is also the area where the greatest milestones are to be found: the rotary tablet press, the inten-



“Versatile high-precision engineering – as found in Europe – plays an eminently important role in the pharmaceutical production system as a whole, a factor which is unfortunately often underestimated by corporate procurement departments.”

*Prof. Dr. Klaus-Jürgen Steffens, University of Bonn, Pharmaceutical Institute
www.pharmtech.uni-bonn.de*

sive mixer, the fluid bed system and the pan coater. Especially worthy of note, however, are the mixing and transport containers including handling systems that have made the production of pharmaceutical solids safer and cheaper.

Viewed from the corporate perspective, what role does engineering play in pharmaceutical production?

Steffens: Pharmaceutical machines are part of the specialized engineering sector – in other words, these are not mass products. That is especially demonstrated by the fact that new machines or improvements are often realized in close collaboration between an engineering firm and one or

two pharmaceutical companies. In addition, machines often need to be specially adapted to meet the customer’s particular requirements. To that extent, versatile high-precision engineering – as found in Europe – plays an eminently important role in the pharmaceutical production system as a whole, a factor which is unfortunately often

underestimated by corporate procurement departments.

Which pressing technological challenges need to be solved? Where is there need for further research? (Is there a “philosopher’s stone” for pharmaceutical engineering?)

Steffens: Over the last few decades pharmaceutical machines have become increasingly GMP-compliant. Nevertheless, there is still room for improvement in the direction of simple, smooth-surfaced designs with no “rough edges” but the smallest possible number of components. With regard to quality management and risk reduction, more research is required into the

integration of valid in-process control systems that enable safe parametric batch release.

What role does operator training play in efficient pharmaceutical production?

Steffens: Although modern pharmaceutical machines have been made more user-friendly by their digital control sys-

tems, and SOPs permit fewer independent interventions in production, the demands made on personnel are increasing all the time. Whereas in the past a large number of trained specialists each carried out and supervised one individual production step, these responsibilities are increasingly being transferred to a single supervisor.

In your view, which requirements are at the top of the users’ priorities list?

Steffens: They want precise, long-lived, low-maintenance, GMP-compliant, environmentally friendly and cost-effective machines that are embedded within a perfectly functioning service and repair system.

How do you define efficiency?

What would you do ...

... if you had the possibility to plan tablet production in the green zone? Or put in a different way: how would you define maximum performance?

The pharmaceutical industry is faced with a wide variety of challenges. To succeed among international competitors, companies are obliged to produce more, in a more flexible manner, faster and above all less expensively than before – in other words: more efficiently.

The FE55 is our answer to these requirements. Discover the next generation of tableting technology.

Three factors are decisive for efficiency in tablet production: productivity, flexibility and availability. The FE55 sets new standards in each of these areas:



New Pressing Station

The FE55 is the only machine of this size for the production of single- and double-layer tablets and is also offering the possibility of direct compression. There is a unique, patented system for swift sampling during production.



New Turret

Up to 50 percent higher production output is possible thanks to the unique ratio of dies to the surface area (up to 87 dies on 1.6 m²).



New Filling System

The innovative filling system allows easy and safe supplies of even complex product mixtures.



New Tablet Chute

The innovative internal tablet discharge allows a guaranteed smooth production.

TRI.EASY Design

Fette Compacting TRI.EASY technology makes its début with the FE55. The idea behind it: Technology can only be efficient if it is equally easy in the three dimensions of operation, service and maintenance. TRI.EASY technology focuses on users. Regardless of the quality level availed of by the operator, TRI.EASY guarantees smooth and safe operation.

New HMI

You can survey all parameters of the tablet press with the newly developed HMI (Human-Machine-Interface) of the FE55. The easy and intuitive handling guarantees maximum efficiency and security.



Fette Compacting FE55 –
the new standard of efficiency in tableting



Thomas Heinrich,
Technical Director

Fette Compacting
www.fette-compacting.com

What was the guiding principle behind the development of the FE55?

Our guiding principle – as it should be in any development – was to create the greatest possible benefit for users. At least, that's the theory. In order to realize that idea in the development of the FE55 we approached our customers and asked them what performance and functionality they would

expect from a new tablet press. During these discussions it very soon became clear that efficiency plays an exceptionally important role. It was interesting, however, when we tried to define what this involves. It eventually emerged that three factors above all others make a tablet press efficient: output, availability and, especially, flexibility. While it is relatively easy to optimize each of these factors individually,

combining all three proved an enormous challenge. I think we were successful, and we are now eagerly awaiting feedback from users.

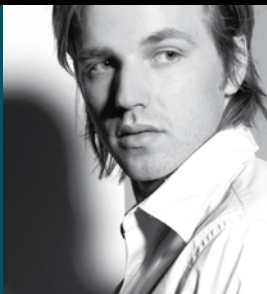
Fette Compacting exports 90% of its machines. What does that mean for the development of a machine?

Pharmaceutical production is strictly regulated, and compliance with the relevant rules is compulsory for all producers. When it comes to production conditions – in other words, buildings, machines and installations – that is relatively easy to achieve using technical solutions. However, the key determinant of the quality of the overall process is the human factor. That means putting the operator at the very centre of the machine development process.

It also means that operators have to be able to operate the machine and its controls easily and safely irrespective of their cultural background and level of training. Therefore, the decisive factors in efficiency are not solely the technical possibilities a machine offers, but also how easy it is to operate, maintain and refit. Because the FE55 sets new standards in all three areas, we have called this the TRIEASY design.

What's Next? What are your plans for the future?

The FE55 is the first product of an innovation campaign that we began in 2009, when we set ourselves the goal of presenting a new machine every year from 2011 onwards. We are therefore already developing technological innovations for other areas.



Dominic Schindler,
Designer

Dominic Schindler Creations
www.dominicschindler.com

What was the guiding principle behind the development of the FE55?

A new design should always also offer a real benefit for the operator. While we were developing the new product and interface design for Fette Compacting, we gave the highest priority not only to making the product look better aesthetically, but also to making it really better in functional terms – in other words, more efficient, easier to clean, more ergonomic and safer for its users.

It was our also aim to clearly communicate Fette Compacting's status as innovation and market leader through the FE55's new visual appearance and updated interface design. The premium image of the brand and the machine is a significant part of the user experience and therefore a decisive aspect of a sale. The operator is rightly proud of working with the best machines

on the market. We wanted to develop and strengthen this feeling and attitude.

That is why we decided to take an innovative and bold approach to the new design of the FE55 tablet press, with which we want to set groundbreaking standards for the future in this industry. This aspiration eventually led us to the idea of using special high-performance plastic material instead of a conventional stainless steel housing. This does not only offer new opportunities in terms of design, but also and above all facilitates the functional benefit I mentioned earlier. In the new design of the FE55 we have ideally succeeded in fashioning a form that clearly communicates the high value and functional quality of the product to the outside world – a design that translates its inner values to the outside, as it were, making them tangible to the operator.

Fette Compacting exports 90% of its machines. How is it possible to develop a suitable global design? Is there such a thing?

On the one hand, it is naturally the case that customers in different cultures also have different aesthetic ideas and perceptions about design. On the other, there are signs that advancing globalization is also leading to a harmonization of these perceptions. One definite example here in the design field is Apple, whose products are highly popular worldwide. With regard to the new design of the Fette Compacting tablet press, aspects such as a high-quality, durable surface, a neat, hygienic appearance and improved ergonomic features will have a global validity. It really was not our goal to create a subjectively beautiful design, but to construct an objectively better, more functional product. The excellent cooperation between engineers and designers enables us to claim with pride that we have succeed in that.

What's Next? What role will design play for manufacturers of machines in the future?

Globalization will also focus management attention on the subject of design in the B2B

sector. As the leading innovation partner for product and interface design in the B2B sector we have been able to observe a change in thinking throughout the engineering industry over the last five years. A new attitude towards products, and also towards customers and markets, is discernible, which is driven above all by globalization and digitalization. This is giving rise to complex challenges for companies. In addition to the opportunities of entering new markets and gaining new customers, suppliers also need to hold their ground against international competitors in their own established markets. The new competition mainly uses price rather than innovation to penetrate these markets. As a result, market leaders feel the need to focus attention on their own innovative strengths and customer focus – and to then communicate these through clearly identifiable designs across all products. It will therefore become practically impossible for modern strategic management not to put designed products on the market.

FE55: Setting a new standard for efficiency in tableting

The FE55 is the first tablet press of an entirely new generation. Fette Compacting has optimized the FE55 to provide the highest levels of productivity, flexibility and availability and aims to set new standards for efficiency in tableting. This aspiration is also clearly reflected in the housing of the new machine, which is made of an FDA-certified high-tech polymer. Its “inner values” are equally convincing.

The FE55 is the only machine of its size that enables users to engage in serial production of more than 90% of all types of tablets without any additional investments or complex conversion. This is made possible, among other things, by the three pressing units integrated in the machine. These enable users to directly compress not only 1- and 2-layer tablets, but also non-granular powder.

A new kind of filling system guarantees smooth filling, even when using difficult powder mixtures that tend to form bridges. This innovative Fill-O-Matic system has far fewer mechanical parts and fills the dies practically directly without redirecting the material over several wheels as in the past. The very highest performance is ensured, among other things, by the FE55's unique ratio of punches to area (up to 87 punches on 1.6 square metres) and the new, patented batch sampler for the production of two-layer tablets. Instead of the usual 20 seconds, sampling of the first layer only takes 4 seconds thanks to a pneumatically adjustable pressure roller. Users can therefore reduce product loss by a factor of six. Finally, the new, internal tablet outlet chute guarantees trouble-free production. A special control prevents sample or reject tablets blocking the outlet.

TRI.EASY design – simplicity is the key to efficiency

Since efficiency is not determined solely by a machine's technical performance, Fette Compacting's TRI.EASY design is celebrating its debut in the FE55. The idea behind it is that technology can only be efficient if it is equally simple (EASY) in the three (TRI) dimensions of operation, refitting and maintenance. The TRI.EASY design therefore centres on the user and guarantees smooth and safe operation of the press irrespective of the experience and training of the operator.



This design approach becomes uniquely clear in the new FE55. Thus, for example, the table on which the filling unit stands can be manually adjusted in 30µm steps. That enables users to always position the filling unit optimally over the segments. Rotor changes, for example, are also just as simple. After users have parked the pressing units, they can change the turret without any physical exertion using a mechanical aid integrated in the machine.

The fact that the machine offers 360-degree accessibility ensures that its assembly and components are easily accessible not only during operation and product changes, but also during maintenance and repairs. Additionally, all the components of the FE55 have been designed to be easily dismantled and cleaned. Furthermore, Fette Compacting gave priority to usability in the FE55's new human-machine-interface, which was developed completely from scratch. Users can keep an eye on all the press's parameters via the 19" touchscreen. The simple and intuitive handling and a full keyboard guarantee maximum efficiency and safety. Windows 7 embedded offers a future-proof solution as operating system.

Convincing results in field trials

The first FE55 prototypes have been undergoing practical field trials since March 2011. A total of over 50 million tablets were produced in all three operating modes (1-layer, 2-layer and direct compression) during the first six weeks. The results have been convincing – not only in terms of product quality, but also in terms of how the machines behaved under practical operating conditions. Thus, for example, wet cleaning for a product change took roughly four hours on average. Operators needed even less time for a dry clean – the FE55 was back in operation after two hours.

Following its world premiere at Interpack 2011, Fette Compacting plans to deliver the first machines to customers at the beginning of 2012.

Interview: Continuous processes are the future of production

What challenges will the pharmaceutical industry face in the future?

Schmidt-Bader: In addition to increasing costs arising out of stricter official standards with regard to the safety and effectiveness of new drugs, companies will have to reckon with declining margins in an increasingly competitive market environment as a result of generic drugs. The pressure on prices is already being increased during the pricing process as a result of the introduction of pharmacoeconomic methods and by further restrictions on the reimbursement side as a result of direct market interventions (discount contracts, price reductions after market approval). At the same time, new targets have to be identified and innovative drugs developed, approved and successfully launched at increasingly shorter intervals.

How do companies react to that?

Schmidt-Bader: Today, global companies primarily respond with rapidly effective measures, such as reducing costs in operational departments and the outsourcing of cost-intensive processes to

low-wage countries. In the medium term, this can be effectively supported by optimizing corporate structures with the aid of excellence programmes, the introduction of quality by design or organizational development. All in all, companies are showing a great deal of interest in strategic partnerships in order to shorten development times.

Which trends are already emerging?

Schmidt-Bader: Future trends in the production field are likely to include continuous processes for the production of high-volume products, on the one hand, and the flexible production of small batches and special drug formulations within the framework of patient-specific therapies, on



"The pharmaceutical production of the future must become more economical, more flexible and more focused on quality."

Dr. Torsten Schmidt-Bader, moveproTEC
www.moveprotec.com

Which direction will pharmaceutical production have to take to meet these requirements?

Schmidt-Bader: Not only from the perspective of the shareholder (corporate earnings), but also with regard to treatment costs in the healthcare sector (drug costs), pharmaceutical production must become more economical, more flexible and more focused on quality in the future. Topics such as increases in OEE and upgrading existing processes with regard to performance, process reliability and yield are on the agenda.

the other. In the process, greater importance will be attached to the documentation of safe production processes by quality assurance systems. In tomorrow's pharmaceutical production systems, improved availability of data will be essential during and after the production process for the purposes of approval, analysis and traceability. The necessary data architectures are likely to entail a significant development of IT infrastructure – in terms of both size and organization.

Fette Compacting Services:

Supporting clients worldwide



The global changes in the pharmaceutical industry directly affect suppliers in the machine tool sector. The changes in requirements in the Indian market, for example, show what this means in concrete terms. The subcontinent is one of strongest growing markets for medicines and today is already number two worldwide for production performance. In March, Fette Compacting became the first manufacturer of specialist machines for the pharmaceutical industry to open a competence centre in the Federal State of Goa in western India. Olaf J. Müller, CEO of Fette Compacting, and Venkat Venkatasubramanian, Managing Director of Fette Compacting India, welcomed more than 60 guests from pharmaceutical enterprises active on the spot to the official opening.

Goa competence centre

Fette Compacting is the first specialized machine manufacturer to open an independent competence centre for the pharmaceutical industry in India. The competence centre is equipped to the same standard as Fette Compacting's existing centres in Schwarzenbek and in Rockaway.

Its presence in one of the most dynamic markets worldwide is of strategic significance for Fette Compacting. Today more than 100 of the enterprise's tableting machines have been installed in India and future prospects are very positive, as Fette Compacting's CEO, Olaf J. Müller stressed: "We are sure that some of the future world market leaders in pharmaceutical production are among the guests at the opening of our competence centre."

Among the guests were decision makers from among others, the companies Alembic, Cipla, Lupin and Ipca, who belong to the ten biggest Indian pharmaceutical enterprises. In addition, representatives of international pharmaceutical enterprises producing in India had accepted Fette Compacting's invitation.

It was clearly expressed in discussions that top class production technology and training provision are key factors for the Indian pharmaceutical industry in order to reach the ambitious growth targets. Here, above all, the quality demanded in the world market plays a central role, as Sanjit Singh Lamba stressed, who works in India for the Japanese pharmaceutical enterprise Eisai. "For us, the greatest challenge is to reach the quality standard that markets, such as Japan, demand. In particular the cosmetic quality of the tablet is part of this, for which in turn the quality of the machine is decisive."



Field technicians – outstanding specialists for outstanding service worldwide

Fette Compacting’s field technicians have a unique double qualification. In addition to having completed an apprenticeship as a mechanic or mechatronic technician, they are also trained as energy plant electronics engineers. Over and above this, they complete a compulsory training programme on tableting. This guarantees that every Fette Compacting employee who is deployed as a field technician is familiar with all the mechanical, electronic and electrical components of its tableting machines and the associated peripheral equipment. Approximately 50 Fette Compacting employees worldwide currently meet these strict requirements. They work closely with specialists at the 40 branches worldwide who have also successfully completed a comprehensive programme of training.

Dr. Vinay Nayak of Alembic Pharmaceuticals makes clear that technology alone is not enough. “As we know, technical development moves very fast. In order to enable people to deal with technology, continuous support and training are needed along with the chance of regularly exchanging views about fresh approaches.” Davinder Singh of Cipla underlines how important presence on the spot is. If you ask him what he expects from the service of a machine supplier who wants to do business with him, his reply is as brief as it is precise: “As soon as there is a malfunction, employees from this enterprise must be there.”

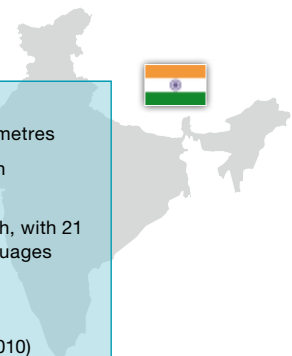
Fette Compacting’s customer services aims to meet these requirements. Clients and users in the pharmaceutical industry can avail themselves of the enterprise’s comprehensive service and training facilities at the locations of the five subsidiaries in the USA (Rockaway, NJ), Latin America (Campinas), India (Goa), China (Nanjing) and Asia Pacific (Singapore). Additionally, Fette Compacting, as the sole producer of tableting machines, supports its clients worldwide with a team of field technicians, specially trained experts in all areas of tableting.

In addition, Fette Compacting’s specialized training and testing facilities in Schwarzenbek mean that the company can offer a

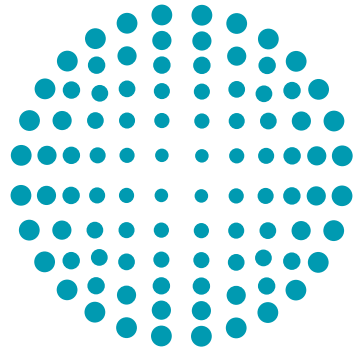
special laboratory prepared for all tableting needs. Customers can therefore use these facilities, for example, for press tests as well as for sample production. In coming years Fette Compacting also intends to expand the services offered by its existing competence centres to a similar level.

The Republic of India

Size	3,287,000 square kilometres
Capital city	New Delhi (13.8 million inhabitants)
Languages	Hindustani and English, with 21 other recognized languages
Population	1.17 billion
Per capita gross domestic product	approx. USD 1,045 (2010)
Inflation rate	11.4%
National budget	USD 206 billion (2009)



Fette Compacting – be efficient



**FETTE
COMPACTING**
be efficient

In 2011, Fette Compacting is beginning a development whose foundations were laid with the restructuring of the LMT Group in 2009 and the legal independence of the engineering division. Today, Fette Compacting is known as the market and technology leader for tablet presses primarily in the European and US pharmaceutical and chemical industry. However, Fette Compacting has also already gained an excellent reputation in the new markets of Asia, and the importance of these markets is growing dramatically.

The innovation campaign that the company initiated two years ago has now got off to a successful start with the

presentation of the first tablet press of a totally new generation. Fette Compacting plans to expand on its role as technology leader and further strengthen its range of consultancy and service packages as well as its local presence on important markets.

This ambition is being projected to the outside world by an updated corporate logo and the new motto “be efficient” – as a promise to customers and an aspiration for the company itself.



Overall Equipment Effectiveness: Key indicator for the pharmaceutical production of the future?

According to the latest report by the PwC management consultancy, the pharmaceutical industry is about to face profound changes in its business models. The consultants focused their attention on the value creation chain in the most recent issue of their well-known “Pharma 2020” series. From the production technology perspective, it is interesting that equipment effectiveness plays a crucial role in all four scenarios that the consultants outline for pharmaceutical companies.

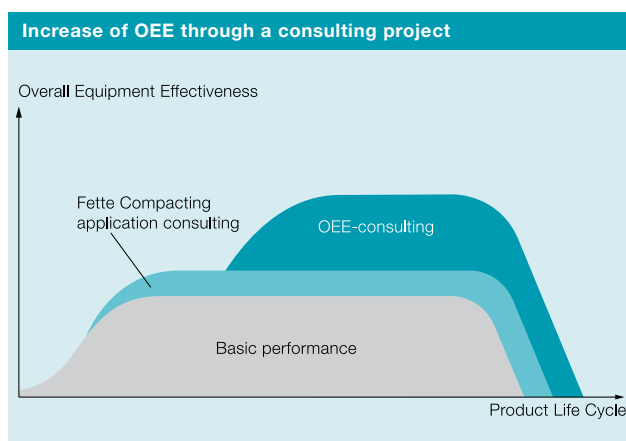
It is also the subject on which Fette Compacting focuses in the consulting services it offers to optimize overall equipment efficiency (OEE). Starting from a holistic analysis of tableting requirements, its experts draw up concrete proposals to enable customers to improve their processes. But what does this service involve?

OEE – what it involves

The Japan Institute of Plant Maintenance defines the OEE index of an installation as the product of three factors: plant availability, machine performance and product quality. The value of each factor lies between 0 and 1 or between 0 and 100%. The way the index is calculated means that relatively satisfactory or even very good individual results can still lead to very low scores for overall equipment effectiveness.

Achieving goals together – an OEE process

At the beginning of the OEE process, the customer works with the consultants to define which machines and processes should be optimized. The Fette Compacting experts then analyze these processes and how the tools and machines are deployed. Afterwards they develop concrete proposals for optimizing processes



and support the contractor in their implementation. Special attention is paid to training the customer’s employees to ensure that improvements are permanent.

Efficient from the word go

Fette Compacting aims to ensure that an OEE consultancy has a positive impact from the very first project so that the necessary investments pay for themselves in a very short period of time. In concrete figures, that means the user’s OEE score should be improved by at least 10 percentage points, relative to the initial level, after one consulting project.

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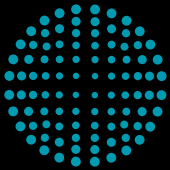
Fax: +49 4151/1277186

application-consulting@fette-compacting.com

Link: www.pwc.com/pharma2020

Availability	Performance	Quality
Production time (365 days = 8760 h)	Output (8760h × capacity)	Product quality
<ul style="list-style-type: none"> - Cleaning time - Changeover time - Down time - Maintenance and inspection 	effected by: Production speed Product transfer Format change Handling	loss of material/ features: <ul style="list-style-type: none"> - Weight - Hardness - Thickness - Wear - Visual appearance
= 52%	= 58%	= 95%
$52\% \times 58\% \times 95\% = \text{OEE Level } 29\%$		

Calculating OEE



**FETTE
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