R&D Solutions

Data-driven. Scalable. Safe.

FETTE
COMPACTING

together
from lab to production

Better together – from lab to production

For more than 75 years, Fette Compacting has been redefining precision in industrial tablet production. As the world market leader in integrated solutions for OSD (Oral Solid Dosage) manufacturing, we deliver decisive competitive advantages. Our portfolio ranges from high-performance tablet presses to specialized Containment solutions and process equipment.

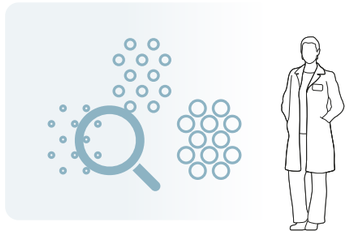
But technology is only one part of our DNA. Guided by our principle “Together – from lab to production”, we support you throughout the entire lifecycle of your products: from initial formulation in the lab through technology transfer to commercial production.

That way, you find the right solution for every product and get it to market faster. With our global network of five Competence Centers in Germany, China, the USA, India, and Brazil, along with 13 subsidiaries and representatives in 50 countries, we are always right where you need us.

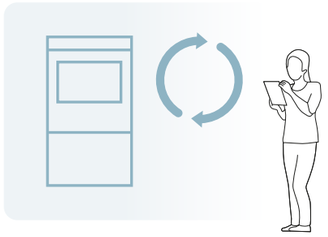
As your holistic process partner, we provide complete solutions. Whether pharma, nutrition, or chemical: We combine tailored consulting with deep technological know-how. The result: customized, efficient solutions for every phase of your product lifecycle – and a partnership that delivers real value.

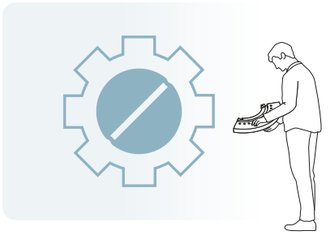
QED

Research & Development



Production





Knowledge Base QED	Formulation development	Process Development	Technology Transfer	Production	Process Optimization
› Concentrated expertise: Access to more than 75 years of tableting experience › Decide with confidence: A digital foundation for sound process planning	› Formulation consulting: Expert support backed by pharmaceutical expertise › Understand your materials: Precise characterization of your active ingredients and excipients	› Test without risk: Emulator-based trials › Stay in control: Development of tailored control strategies › Leverage your data: Seamless integration of Process Analytical Technology (PAT)	› Scale with ease: Reliable transition from development to production › Navigate regulatory requirements: Support in overcoming regulatory hurdles › Validate your processes: Efficient transfer and safeguarding of your processes	› Produce flexibly: Tablet presses for batch operations and Continuous Manufacturing › Protect people and the environment: Purpose-built Containment solutions › All from a single source: Process equipment and tableting tools	› Boost performance: Ongoing production support › Minimize risks: Identify and address weak points early › Improve processes: Development of customized optimization strategies

Quality by Design and Qualified Experts-Database

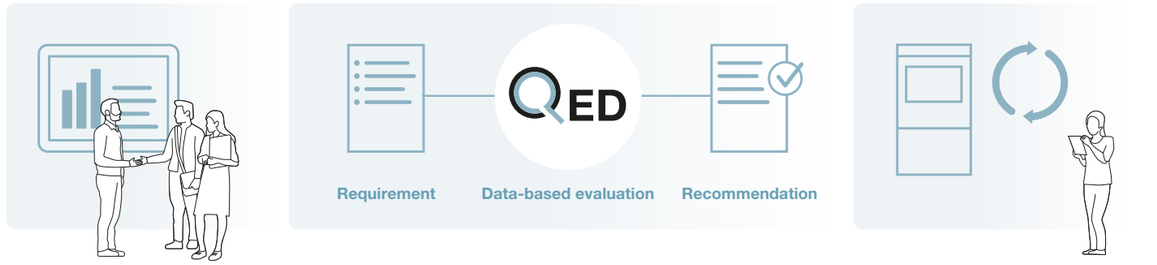
The foundation for efficient production of solids

Quality is not a coincidence – it is built into the design
Excellent tablets are the result of systematic planning, which is why we embrace Quality by Design (QbD). By understanding all key production elements and material properties, we ensure that quality is not just checked at the end of production, but is embedded in the product from the very beginning.

For robust processes, we examine the interactions between Critical Material Attributes (CMAs), Critical Process Parameters (CPPs), and Critical Quality Attributes (CQAs). By understanding how material and machine interact and how they influence quality, we work with you to define the proven process space where your production runs consistently, reproducibly, and at flawless quality.

QED
Qualified Experts-Database by Fette Compacting

Optimized formulation and process development with QED



QTPP	CQAs	CMAs	CPPs	CPPs ✓
Customer provides materials and requirements		Material characterization and analysis	Prediction of process parameters	Verification and optimization of predicted process parameters

QTPP = Quality Target Product Profile
CQAs = Critical Quality Attributes
CMAs = Critical Material Attributes
CPPs = Critical Process Parameters

The optimal solution with minimal investment of time and material

A knowledge edge at every stage of development
Quality by Design delivers the plan; QED delivers the answers. With the Qualified Experts-Database (QED), Fette Compacting has built an extensive data platform that draws on more than 75 years of tableting experience. It links formulation and process expertise and serves as a solid decision-making basis throughout development and production. AI-driven analyses, based on a patented method, enable early predictions for optimal process development. Our experts verify these predictions and advise you based on the QED with maximum efficiency. This saves you valuable time on the path to market readiness.

The strengths of the QED:
+ Links multivariate material data with real production and quality data
+ Covers an outstanding range of machines, format parts, and process variants
+ Uses AI to reliably analyze and predict complex interactions
+ Significantly reduces development effort, trial runs, and material consumption
+ Delivers concrete, practice-oriented recommendations for robust and efficient processes

Our R&D Solutions at a Glance

Together from powder
to the perfect tablet

R&D Solutions

The path to market readiness is often long and full of uncertainties. With R&D Solutions from Fette Compacting, you can significantly shorten and simplify this process. Throughout, we are committed to the highest product safety: quality is never left to chance but is systematically planned in line with the QbD principle. As your holistic process partner, we accompany you from the initial idea to validated series production – ensuring robust processes and reliable planning.

Formulation Development

A high-quality tablet begins with precise powder analysis and a comprehensive understanding of material properties. We identify physical parameters early to prevent errors and production problems later on. Using minimal material, we analyze the compaction behavior and optimize your formulation for industrial production.

Process Development

We use modern technology to enable a smooth transition from the laboratory to a stable production process. Our emulators and the Galenic-Tablet Press 102i precisely replicate the physics of production machines. This way, we define stable process parameters and control strategies without tying up valuable capacity on your machines.

Technology Transfer

The transition from the laboratory to GMP-compliant production comes with many hurdles. We support you every step of the way: from transferring process parameters to large-scale machines through validation to regulatory documentation. We also support you in producing clinical batches and offer targeted training for your team.

Powder Compaction Analysis Unit F Lab 10

Understanding powder before production begins

Avoiding costly errors during tableting and developing robust formulations requires complete transparency about your material properties. The F Lab 10 gives you the product and process understanding that the Quality by Design principle requires for densification, compaction and discharge. It analyzes the densification and compaction behavior of your powdered active ingredients and excipients comprehensively, quickly, and with minimal material usage. This allows you to gain precise insights into critical material properties early on that tie directly to the quality attributes of the final tablet. The result is a solid basis for developing robust formulations and transferring data safely into the production process.

Your benefits at a glance:

+ Faster market launch: Cut your time-to-market through efficient and straightforward product development
+ Maximum cost efficiency: Generate meaningful data with even the smallest powder quantities by realistically simulating the tableting process. This helps you develop new formulations and optimize existing recipes.
+ Seamless data utilization: Apply the insights gained across the entire product lifecycle — from the recipe to in-process control

Complete compaction analysis in 30 minutes

We reduce complexity. With a complete system comprising F Lab 10, scale, micrometer, breaking strength tester, and our analysis software, you obtain comprehensive data on powder properties in record time.

1. **Produce tablets:**
   Precise compaction with the F Lab 10
2. **Measure tablets:**
   Exact recording of weight and dimensions with scale and micrometer
3. **Test tablets:**
   Determine breaking strength with the breaking strength tester
4 **Analyze tablet properties:**
   Data analysis through integrated software

Intelligent software for clear decisions

Our integrated dashboard analysis software takes care of the manual work. It automatically collects data from all connected devices and generates reports in line with the United States Pharmacopeia, Chapter <1062>, requirements. Thanks to intuitive color codes, you can interpret material and recipe comparisons at a glance. This lets you operate the system safely and efficiently – even without in-depth specialist knowledge.

The advantages of the F Lab 10

+ Efficient: Minimum sample mass of less than two grams conserves expensive active ingredients
+ Flexible: Ideal for a variety of applications
+ Powerful: Maximum force of 1,000 kg
+ Fast: Up and running with less than two hours of onboarding
+ Clean: Easy to clean

Maximum load	1,000 kg
Punch size range (diameter)	3 – 15 mm
Compaction speed	0.01 – 3 mm/s
Data capture rate	200 Hz
Load cell travel	40 mm
Load cell resolution	1:5,000
Calibration	Dead weights or proving ring
Power requirement	90–240 VAC 3.15 A
Dimensions	320 × 285 × 388 mm
Weight	24 kg

Emulators
Process development close to production

Transferring new formulations from the laboratory to industrial production is a critical bottleneck, since powders and processes often behave differently at large scale than during development. Simulators based purely on mathematical models fall short here. Emulators, by contrast, replicate the physical conditions and mechanics of production systems precisely without tying up valuable capacity on commercial machines.

This realistic representation of process dynamics enables critical parameters and analytical methods to be reliably validated even before actual production starts. This conserves cost-intensive active ingredients and significantly minimizes scale-up risks, since all data and settings can be transferred directly to the production line without conversion effort.

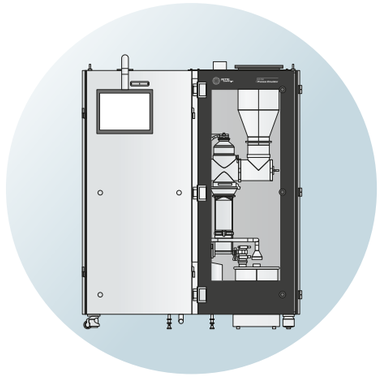
FE CPS Process Emulator
Precision in Continuous Dosing

In Continuous Direct Compression with Loss-in-Weight dosing, the precise filling and refilling of individual ingredients into the formulation are decisive steps for ensuring a homogeneous mixture. The FE CPS Process Emulator replicates the dosing process of the production machine (FE CPS) with physical precision at a 1:1 scale.

The system uses the same Loss-in-Weight dosers (LiW dosers) and Automatic Refill Systems (ARS) as the full-scale machine and covers the entire range from the smallest quantities (50 g/h) to production scale (over 100 kg/h). Dosing parameters, screw types, and refill strategies can be systematically tested and optimized. Since the controls are fully aligned with the production machine, you work in a familiar environment and generate directly transferable data sets and recipes.

Your benefits:

+ Direct scale-up: Transfer recipes and parameters by “plug-and-play” without conversion factors to the production line.
+ Operational independence: Test screw types, refill strategies, and the flow behavior of new powders without interrupting ongoing production.
+ Material efficiency: Conduct process development and optimizations with minimal raw material usage.
+ Flexibility: Move the system flexibly thanks to integrated rollers.



FE CPS
Process Emulator

Electrical supply parameters	Operating voltage 400 – 480 V, Frequency 50 – 60 Hz
Power supply	3 phase + PE
Dimensions L × W × H	1,642 × 822 × 2,047 mm
Weight	650 kg
Supply air volume flow	50 m3 / h
Compressed air supply	6 bar, 300 l/min
Exhaust air volume flow	50 m3 / h
Connection to exhaust air system	33.7 mm
Network connection	RJ45
Display	19" touch display
Number of dosing stations	1
Throughput capacity	0.7 – 340.1 kg/h *

* depends on configuration

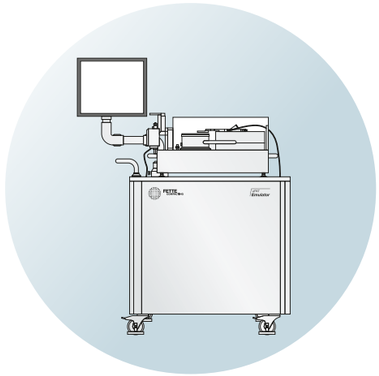
ePAT Emulator
Foundation for reliable in-line measurements of tablet uniformity

For precise real-time monitoring of tablet quality in production, embedded Process Analytical Technology (ePAT) is essential. ePAT uses near-infrared spectroscopy (NIR) to measure both Tablet Uniformity (TU) and Blend Uniformity (BU) directly in the process.

The ePAT Emulator provides the necessary foundation: in a controlled environment, chemometric models are developed, calibrated, and validated. This way, measurement data can be reliably translated into concrete quality insights before production even starts. The ePAT Emulator can also be used to optimize existing models.

The system physically reproduces the dynamics of the tableting processes with precision. Tablets pass the TU sensor at the same speed and trajectory as in the actual process. This way, optimal spectrometer settings can be determined and measurement methods reliably validated without tying up valuable machine capacity. A Blend Uniformity sensor can be added as an option.

Your benefits:
+ Process reliability: Validate analytical models before production begins for reliable in-line measurements.
+ Precise analytics: Optimize parameter settings under real dynamic conditions.
+ Resource efficiency: Conduct representative tests and calibrations with a minimal number of tablets.
+ Direct transferability: Use validated recipes and methods seamlessly at production scale.



ePAT Emulator

Electrical supply parameters	Operating voltage 230 V, Frequency 50 Hz
Dimensions L × W × H	1,656 × 592 × 1,027 mm
Weight	298 – 337 kg *
Main air inlet / outlet	98 m3 / h
Air inlet / outlet	19 m3 / h
Network connection	RJ45
WLAN	Current and older WiFi standards
Display	19" touch display

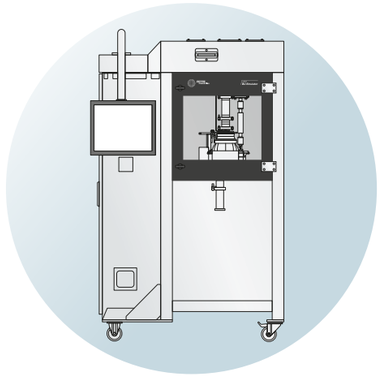
* depends on configuration

ePAT BU Emulator
Understanding Powder Dynamics in the Feeding System

The uniformity of the powder mixture in the feeding system is decisive for the quality of every tablet. The ePAT BU Emulator lets you examine these dynamic processes in isolation and develop and optimize spectroscopic methods under real-world conditions.

The system physically reproduces the feeding device and powder feed of the tableting processes with precision. An integrated BU sensor measures the homogeneity of the mixture directly in the filling device. This way, you analyze the behavior of the powder in the process flow without needing to start a complete pressing process. Optionally, an additional BU sensor can be installed in the feeding tube.

Your benefits:
+ Deep process understanding: Develop spectroscopic methods directly under the real filling conditions of the tablet press.
+ Material efficiency: Only the smallest powder quantities are required. Unpressed powder can be reused for further tests.
+ Seamless integration: Transfer methods directly to the production machine.
+ Clear focus: Analyze the filling process specifically without tying up capacity for complete tableting.



ePAT BU Emulator

Electrical supply parameters	Operating voltage 400 – 480 V, Frequency 50 – 60 Hz
Power supply	3 phase + PE
Dimensions L × W × H	1,235 × 675 × 2,010 mm
Weight	325 kg
Supply air volume flow	150 – 200 m3 / h
Exhaust air volume flow	150 – 200 m3 / h
Connection to exhaust air system	47.5 mm
Network connection	RJ45
Display	19" touch display

Galenic-Tablet Press 102i
Production-like galenics for direct scale-up

The 102i tablet press links the world of pharmaceutical development and industrial production. As a system for production-like galenics, it enables formulations to be validated under real conditions. Its decisive advantage: the design is identical to the series tablet presses from Fette Compacting – critical geometries such as pitch circle and compression roller diameter match exactly.

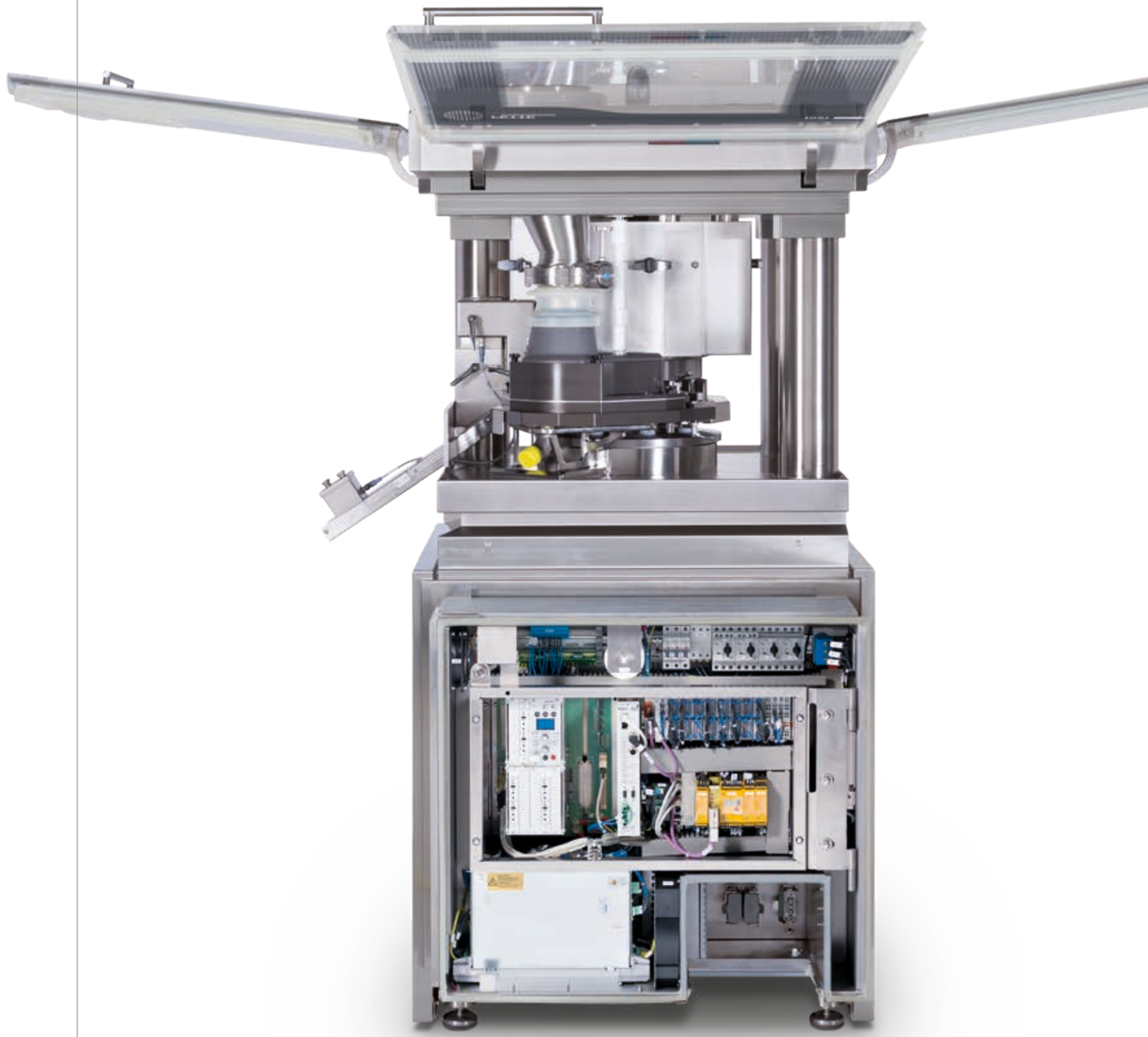
As a result, process parameters determined in the laboratory – such as dwell times or feeding behavior – can be transferred directly to production without conversions. This eliminates typical scale-up risks, reduces the number of test series required, and significantly shortens time-to-market for new products.

Modularity and investment protection
Thanks to a consistent platform strategy, the 102i offers maximum investment protection: the Galenic-Tablet Press can be technically upgraded to the complete functional range as requirements grow. As a result, the system covers a wide range of applications, from basic research through clinical samples to small batches.

Resource efficiency and multi-layer technology
For maximum material efficiency, the machine allows single-punch compression with manual filling. This way, valid data can be generated even from the smallest product quantities. This is a decisive advantage when active ingredients are scarce and expensive during development. Precise sensor technology captures all forces and presents them in detailed force-displacement diagrams for direct evaluation.

In addition, the 102i allows the production of bi-layer and even tri-layer tablets at laboratory scale, including fully automatic tablet ejection. The insights gained can be transferred without restrictions to the process control of double and triple rotary tablet presses in production.

Your benefits:
+ Safe scale-up: Transfer recipes and parameters to all tablet presses from Fette Compacting.
+ Format flexibility: Test diverse formats efficiently using mixing rotors.
+ Maximum material efficiency: Conserve valuable active ingredients through single-punch compression and manual feeding.
+ High flexibility: Use one system for everything – from galenics through clinical samples to multi-layer tablet production.



Galenics-Tablet Press 102i

Dies (D) / Segments (S)		D	D	D	D	D	D	D	D	S	S	S	S
Number of punch stations		6	6	16 (8+8)	16 (8+8)	20	32	30	24	21	24	30	45
Punch type		FS19® EU19 TSM19 B	EU1" TSM1" D	FS19® EU19 TSM19 B	EU1" TSM1" D	EU1" EU1"-441 TSM1" D	FS19® EU19 TSM19 BBS	FS19® EU19 TSM19 BB	FS19® EU19 TSM19 B	EU1"-441	EU1" TSM1"	FS19® EU19 TSM19	FS12®
Tablet output units/h	min.	9,000	9,000	24,000 (12,000)	24,000 (12,000)	30,000	48,000	45,000	36,000	31,500	36,000	45,000	67,500
	max.	43,200	36,000	96,000 (48,000)	96,000 (48,000)	120,000	230,400	216,000	172,800	126,000	144,000	216,000	324,000
Max. compression force 1*	kN	80	80	80	80	80	80	80	80	80	80	80	34
Max. compression force 2*	kN	80	80	80	80	80	80	80	80	80	80	80	34
Max. tablet diameter	mm	16	25	18	25	25	11	13	18	25	25	18	11
Max. filling depth 1st layer**	mm	18	18	18	18	18	18	18	18	20	20	20	20
Pitch circle diameter	mm	280	280	280	280	280	280	280	280	280	280	280	280
Turret rotation speed min.	min^{-1}	25	25	25	25	25	25	25	25	25	25	25	25
max. (laboratory operation)	min^{-1}	120 (150)	100 (100)	100 (100)	100 (100)	100 (100)	120 (150)	120 (150)	120 (150)	100 (150)	100 (150)	120 (150)	120 (150)
Die diameter	mm	30.16	38.1	30.16	38.1	38.1	22	24	30.16	–	–	–	–
Die / segment height	mm	22.225	23.8	22.225	23.8	23.8	22.225	22.225	22.225	25	25	25	25
Punch shaft diameter	mm	19	25.35	19	25.35	25.35	19	19	19	25.35	25.35	19	12
Punch length Upper / lower punch	mm	133.6 (133.35)	133.6 (133.35)	133.6 (133.35)	133.6 (133.35)	133.6 (133.35)	133.6 (133.35)	133.6 (133.35)	133.6 (133.35)	133.6	133.6 (133.35)	133.6 (133.35)	133.6
Upper punch insertion depth	mm	1–4 (8***)	1–4 (8***)	1–4 (8***)	1–4 (8***)	1–4 (8***)	1–4 (8***)	1–4 (8***)	1–4 (8***)	1–4 (8***)	1–4 (8***)	1–4 (8***)	1–4 (8***)
Dimensions L × W × H	mm	920 × 1,136 × 1,875											
Weight		Tablet press 1,700 – 2,500 kg, operating terminal 100 kg											
Electrical supply parameters		Operating voltage 400 – 480 V, 50/60 Hz, power consumption 8.4 kW											

Theoretical values and technical limits: These may vary in practice depending on the product and application.
Tablet thickness is a product-dependent variable and can vary significantly.
* limited by punch properties
** special filling depth available on request
*** multi-layer operation

Theoretical Formulation Development

A sound formulation assessment
to support your development

Our Theoretical Formulation Development Service provides a sound assessment of your tablet formulation.

Drawing on the formulation data, we analyze the composition, evaluate critical ingredient ratios, and identify suitable excipients to enhance processability. You also receive an initial theoretical recommendation for optimal process design, along with a clearly structured report that summarizes all findings.

As this service is based on a purely theoretical approach, we recommend following it up with a Powder Compaction Analysis. This allows you to experimentally confirm the results and validate the compaction behavior of your material under real compression conditions.

Your benefits:

+ Early guidance: Well-founded formulation assessment before the first trial even begins
+ Optimized composition: Targeted excipient recommendations for improved processability
+ Structured decision base: Clear, well-organized insights presented in a concise report
+ Seamless transition: The ideal precursor to Powder Compaction Analysis for experimental validation

Material Characterization

Deep insights into raw materials

A deep understanding of raw materials is the basis for every robust tableting process. Long before the first tablet is pressed, physical and chemical properties determine the success of your production. Our Material Characterization Service delivers exactly these decisive insights.

We systematically identify and quantify Critical Material Attributes such as water activity, various density parameters, and particle size distribution, using methods like laser diffraction spectroscopy. We then link the resulting material data with Critical Process Parameters such as compression force, mixing efficiency, and ejection force. With our Qualified Experts-Database (QED), we can derive initial predictions and recommendations for your tableting process and lay the foundation for scalable manufacturing processes.

Your benefits:

+ Faster scaling: Shorter development cycles thanks to sound material data
+ Process safety: Early identification of critical influencing factors
+ Higher efficiency: Reduced material loss and optimized resource use

Feasibility Studies
Sound decisions, minimized risk

New formulations or modified processes pose challenges for every production operation. Our feasibility study service creates clarity before you invest further time and resources. We view your project in its full context — not just individual parameters, but the interplay of all relevant factors.
In doing so, we combine scientific expertise with a hands-on approach to identify risks early and unlock potential in a targeted way.

Using state-of-the-art methods, we analyze process capability, conduct trials, and coordinate all criteria and data in close collaboration with you. We summarize the results in a clearly structured report.
You receive more than just measurement data: our recommendations enable you to make development decisions quickly, with confidence, and with minimal risk.

Your benefits:
+ Sound basis for decisions: clear assessment of feasibility and risks
+ Holistic approach: consideration of material, process, and economic factors
+ Tailored machine specification for new projects: sound derivation and targeted narrowing of machine specifications

Tablet Characterization
Precise evaluation in line with pharmacological standards

Our Tablet Characterization Service delivers precise, meaningful data to evaluate your tablets according to recognized pharmacological standards.

We focus on quality-relevant properties such as friability, disintegration time, breaking strength, and hardness, which we examine in accordance with the established Ph. Eur. methods (2.9.7, 2.9.1, 2.9.8). We also determine tablet weight and benchmark all results directly against your defined quality requirements.

The outcome is a robust data foundation that targets your formulation and process development precisely where it matters – paving the way for robust, high-performance manufacturing processes.

Your benefits:
+ Reliable evaluation: Testing in line with recognized Ph. Eur. methods (2.9.7, 2.9.1, 2.9.8)
+ Direct quality alignment: Results benchmarked against your defined requirements
+ Sound basis for decisions: Robust data to drive targeted formulation and process development

Powder Compaction Analysis

Understand compaction behavior,
ensure process stability

The compactability of powders is a decisive factor for quality and process stability in your production. Our service provides in-depth insights: using our F Lab 10 Powder Compaction Analysis Unit, we analyze exactly how your material behaves and compacts under varying compression forces.

We document each investigation in detail and compare the results against data from our Qualified Experts-Database (QED). We then prepare the results in clear presentations for you. This way, you receive more than raw data — you receive clear recommendations for your development and production so that you can optimize processes and adapt materials in a targeted way.

Your benefits:

+ Sound data foundation: Precise analysis using F Lab 10 and benchmarking against QED data
+ Clear recommendations: Prepared results as a direct decision-making aid
+ Higher quality: Targeted process optimization through deep material understanding

Feeder Characterization

Stable powder feeding
for robust processes

Our Feeder Characterization gives you a precise understanding of how your powders behave during dosing under defined process conditions. The goal is to identify stability limits early and define the optimal machine parameters for reliable, uniform feeding.

Together with you, we develop a test plan precisely tailored to your formulation and process requirements – complete with clearly defined acceptance criteria. In the tests that follow, we analyze feeder performance across all relevant operating and speed ranges and evaluate both volumetric and gravimetric dosing accuracy.

The results allow us to identify the critical factors influencing process stability and provide the basis for targeted recommendations for optimal machine and process settings. A comprehensive report consolidates all key findings, laying the foundation for a stable, accurate, and reproducible dosing process.

Your benefits:

+ Early risk detection: Clearly identified stability limits – before they become critical in production
+ Tailored test plan: Clearly defined acceptance criteria, aligned with your formulation and requirements
+ Robust data foundation: A comprehensive report that provides a sound basis for your ongoing process development

High-Performance Liquid Chromatography / HPLC

Precise analytics for research and quality control

Reliable analytics is the foundation for safe pharmaceutical products. Our HPLC Service supports you both in research and in routine quality control for analyzing active ingredients, excipients, impurities, and degradation products. We not only handle contract analytics but also offer end-to-end method development, validation, and transfer. Our service delivers accurate and reproducible results tailored to the specific requirements of each product. Throughout, we place the highest priority on data integrity, complete documentation, and short turnaround times.

A particular added value of HPLC analytics lies in its role as a reference method for modern process analytical technologies such as embedded Process Analytical Technology (ePAT). This way, our laboratory results form the direct basis for your precise process analysis and monitoring during ongoing production.

Your benefits:

+ Comprehensive method expertise: end-to-end development, validation, and transfer from a single source
+ Data integrity and speed: reproducible results with short turnaround times
+ Outsourcing: frees up your in-house analysis capacity
+ ePAT reference: HPLC confirms the correct calibration of the ePAT system, ensuring reliability

Process Design Spaces

Safe framework for flexible and robust processes

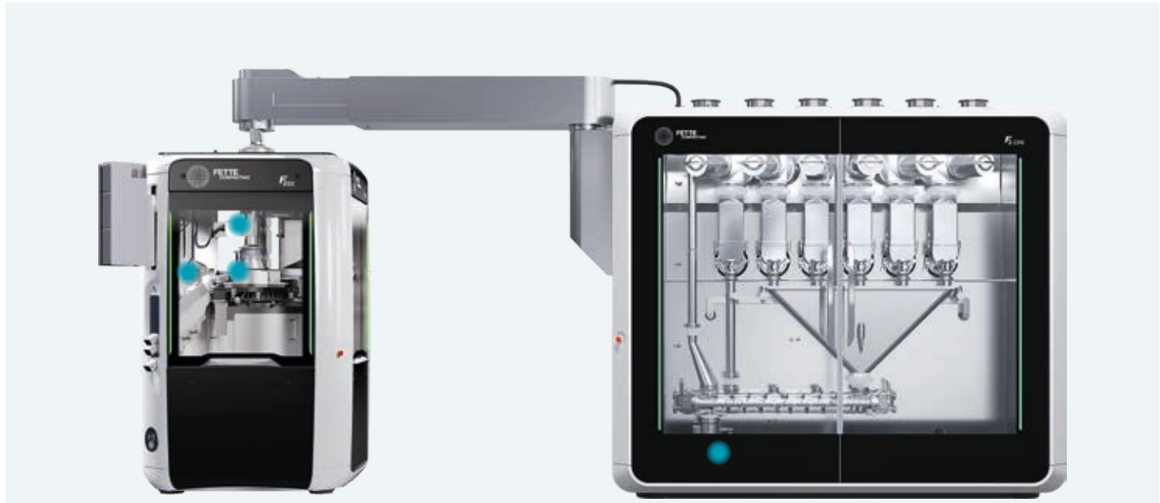
A robust process needs a defined operating range. Our service identifies your Process Design Space – the operating range within which your production runs reliably and reproducibly. In line with the Quality by Design principle, we take a holistic view of the interaction between Critical Material Attributes, Critical Process Parameters, and the Critical Quality Attributes of the final product.

We analyze potential risks along the entire value chain – from material- and process-related challenges through failure risks to quality issues – and translate them, together with you, into a tailored test framework. Through test runs, we validate the limits within which you can adjust your process without compromising quality. The result is a scientifically grounded and practically actionable strategy for more efficient, more robust, and scalable processes.

Your benefits:

+ Maximum process safety: more stable production through defined parameter limits
+ Concrete recommendations for action: clear, data-backed measures for optimizing and scaling your processes
+ Economic efficiency: less material loss and lower development costs

ePAT Development
Data-driven in-line process control
for maximum efficiency



Optimize your product understanding and your production performance with modern embedded Process Analytical Technology (ePAT). Our ePAT Development Service supports you in introducing and using this key technology — from the initial feasibility study and model development to implementation in ongoing production.

We support you in data generation and Design of Experiments, conduct trials, and reliably analyze even complex products. In the process, we record calibration spectra and create chemometric models for process prediction using multivariate data analysis. Our experts assist you with validation trials, the transfer to production, and the creation of regulatory-compliant data. We compile the results in reports so that you receive immediately actionable insights for data-based process control.

Your benefits:
+ Seamless integration: support from model development to implementation in production
+ Modern analytics: real-time monitoring of processes
+ Higher performance: robust processes for greater efficiency and quality at every step
+ Complete in-line control: full monitoring and targeted ejection of single tablets that do not meet specification

ePAT

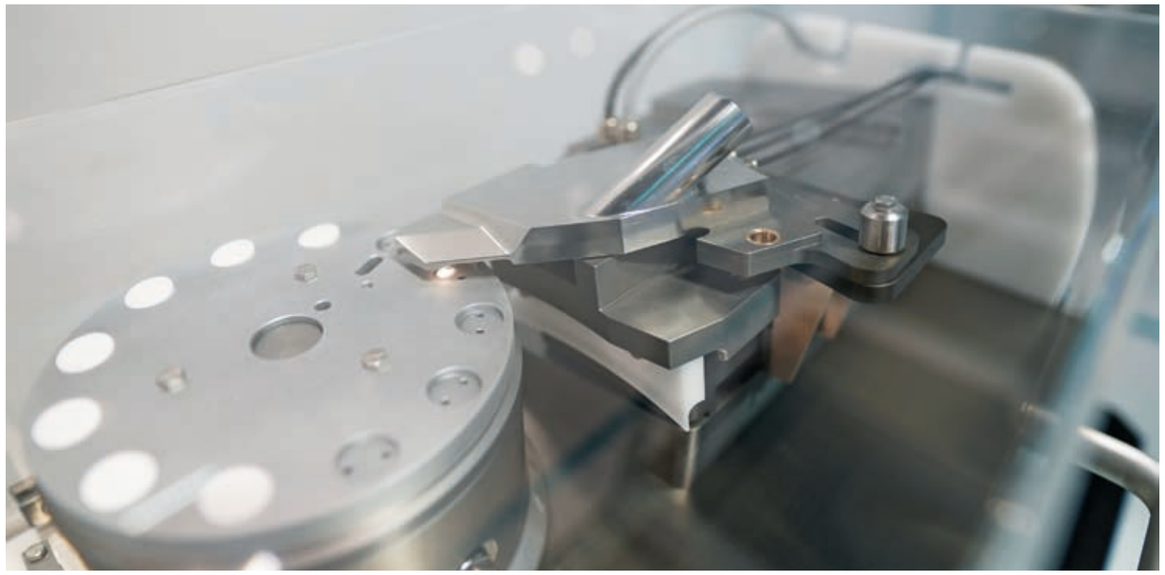
Process Dynamics & State of Control
Full process control
at all times

Gain the assurance that your production always runs reliably and under control. Our Process Dynamics & State of Control Service takes a holistic view of the complex interplay between product, process, and system dynamics. Together with you, we identify the relevant control parameters, analyze the system dynamics related to product and throughput, and develop a Residence Time Distribution (RTD) model as well as a LOT genealogy – a transparent, end-to-end traceability of the production batch.

In defined test runs, we cover all relevant scenarios, from long-term runs through start and stop events to process changes. We prepare the resulting data so that you gain meaningful insights into process stability. This way, you not only reliably meet regulatory requirements but also build strong confidence in your processes.

Your benefits:
+ Maximum transparency: end-to-end traceability through LOT genealogy
+ Operational stability: reliable production even after process interruptions
+ Reliable data foundation: meaningful insights into process stability for sound decisions

Control Strategy
Foresight for sustainable process safety



Robust process control is the key to long-term quality and efficiency. Our Control Strategy Service helps you establish a strategy that meets regulatory requirements and safeguards your processes for the long term. We identify the Process Analytical Technology (PAT) systems best suited to your processes and define the decisive data points for precise control.

In close coordination with you, we define control parameters and acceptance criteria and develop a structured verification plan. After systematic preparation, execution, and analysis of the tests, you receive a clear report with sound recommendations. This way, you ensure that your production runs stably and in regulatory compliance – today and in the future.

Your benefits:
+ Future-proof control: integration of modern PAT systems and data analyses
+ Defined quality: clear acceptance criteria and verified control parameters
+ Long-term safety: strategic alignment for stable and compliant processes

Process Transfer
Safe transition into the production environment

The step from laboratory to GMP production is important. Our Process Transfer Service supports you in moving developed processes safely and efficiently into the production environment. The goal is a smooth transition that ensures quality, efficiency, and regulatory compliance from day one.

We make sure that all required materials, devices, and validation objects are identified, and we establish a structured schedule. During production validation, we accompany the process in real time, analyze all data, and document the stability of the transfer. In the end, you receive a detailed validation report including analyses that highlights any deviations.

Your benefits:
+ Smooth start: safe, traceable transfer and validation in the production environment
+ Regulatory safety: comprehensive documentation and compliance with all applicable GMP requirements
+ Always at your side: active, real-time support from our specialists

Clinical Batch
Reliable batches for clinical studies

Our Clinical Batch Service offers comprehensive support for producing clinical study batches, from initial planning to final release. We ensure that quality, compliance, and schedules are reliably met.

We accompany you every step of the way: from planning the GMP production – including careful coordination of all materials, resources, and production steps – through implementation to analytical testing. All results are transparently documented and compiled into a report that serves as the basis for releasing your clinical batch. This way, we deliver safety and transparency at every production step.

Your benefits:
+ End-to-end support: from planning to analytical testing – all from a single source
+ Highest safety: strict adherence to quality standards and schedules
+ Transparency: clear documentation as the basis for batch release
+ Reduced investment and resource needs: no in-house capacity required while shortening time-to-market

Stability Studies
Reliable stability data to support your product development

Our Stability Studies Service covers the GMP-compliant manufacturing, documentation, storage, and operational execution of stability studies for your tablets.

Samples are stored in stability chambers under controlled conditions and tested at predefined intervals. This establishes a solid foundation for reliable stability data, qualified storage, and regulatory-driven product development.

Your benefits:
+ GMP-compliant execution: Manufacturing, documentation, and storage in line with applicable standards
+ Controlled conditions: Storage in stability chambers and testing at predefined intervals
+ Regulatory confidence: A robust data foundation for sound product development

Training Offers
Knowledge
that drives innovation

Outstanding research results emerge at the intersection between human expertise and technological precision. Our R&D Solutions offer enormous potential for data collection and process analysis. However, they only unlock their full potential through safe operation and deep understanding.

Our training offering for the research and development area closes the gap between theory and practice. We don't just teach your teams how to safely handle our software and machines — we enable them to interpret complex data correctly and make it usable for scale-up. Whether in our global Competence Centers in Germany, the USA, China, Brazil, and India, or directly on-site at your facilities: we deepen your development team's know-how in working with state-of-the-art technology and applying hands-on methods. We offer our trainings in six languages. Participants always conclude them with a performance assessment and a 21 CFR-compliant certificate. Further Training Offers, including for Production Services, can be found in our training brochure.

Your benefits:
+ Faster development: more efficient use of software and equipment shortens time-to-market
+ Safe scale-up: sound data interpretation eases the transfer to production
+ Data integrity: proper trial planning and evaluation ensures valid results
+ Investment protection: professional operation and maintenance extend the service life of your laboratory equipment
+ Certified competence: demonstrable qualification of your team through completion certificates

Training Modules in
Research and Development

Galenics:
This training enables confident operation of the Galenic Software from Fette Compacting. Participants also learn to design, monitor, and optimize manufacturing processes – for example, by analyzing force-displacement diagrams. The focus is on the practical implementation of pressing methods, including the production of single-layer and multi-layer tablets, as well as on machine adjustments to keep processes smooth and efficient.

F Lab 10:
A practice-oriented introduction to working with the F Lab 10 and its capabilities. From correct setup through running initial pressing trials to the proper evaluation of measurement data and diagrams: participants learn to use the F Lab 10 efficiently for trial planning, execution, and evaluation. As an option, the training includes qualification for independent calibration.

Emulators:
Participants learn step by step to configure emulators independently and to record and adjust process parameters with precision. The focus is on how to derive reliable data from trials, interpret it, and use it specifically for process optimization. Hands-on exercises directly on the emulator deepen the theoretical knowledge. Participants simulate typical scenarios, perform parameter changes, and analyze their effects on the later production process. This way, they learn how to transfer the insights gained safely and directly into operational practice.

Individual training:
Together, we develop a training concept tailored exactly to your processes and machines. Whether adapting existing content, integrating specific production parameters, or providing training on company-owned machines: our experienced specialists combine technical expertise with didactic skills to enable your team in a sustainable, practice-oriented way.

Explore More Products and Services

Complete brochure overview:
www.fette-compacting.com/en/downloads

Global Training Program

With our global training program, we bridge the gap between theory and practice and help you unlock the full potential of your tableting processes. We offer tailored modules for every phase of your process – from development to maintenance.

+ Standard modules and customized training programs
+ Certification according to 21 CFR
+ Flexible delivery at your site or at our Competence Centers
+ Global training program in six languages

Brochure: Global Training Program

FE CPS

Continuous Manufacturing delivers efficiency and quality benefits. The FE CPS is a compact solution that is easy to install. It offers the flexibility needed for product changeovers and for process-driven formulation development. The FE CPS paves the way from lab to serial production.

+ Operation, maintenance, and changeover – easy, safe, and fast
+ Processing of numerous formulations from 5 to 400 kg/h
+ Cleaning and product changeover in less than one shift

Brochure: FE CPS

Containment Guard

With the Containment Guard, Fette Compacting standardizes the retention performance of containment systems and makes it measurable and comparable in real-world conditions. On this basis, we integrate machines and processes for the safe handling of active ingredients from R&D to serial production.

+ Integrated, end-to-end containment
+ Measurable retention performance and SMEPAC validation
+ Custom-fit solution for your specific requirements

Brochure: Containment Guard

CONTAINMENT GUARD

Together – from lab to production

With us, your product reaches market readiness faster. As an experienced R&D and process partner, Fette Compacting supports manufacturers with decades of expertise across the entire product lifecycle – from the first formulation concept to market launch and production.

+ Effective consulting and testing under GMP conditions
+ Services from formulation to process optimization
+ Faster time-to-market for your product

Brochure: Together – from lab to production

together
from lab to production

Tableting Tools

Our tableting tools optimize the performance and cost-efficiency of your tablet production. Precisely engineered punches and segment technologies, premium materials, and coatings increase output, reduce wear, and ensure consistently high tablet quality.

+ Higher output through optimized tool geometry
+ Longer service life and reduced wear
+ Efficient handling, cleaning, and tool management

Brochure: Tableting Tools

TABLETING TOOLS

Production Services

Our Production Services provide comprehensive support for your tablet production – from initial commissioning to process optimization in day-to-day operation. Our experts ensure maximum machine availability, minimal downtimes, and future-proof systems.

+ Technical support and fast spare parts management
+ Data-driven process optimization and fleetmanagement
+ Machine modernization and refurbished pre-owned machines
+ Global training program

Brochure: Production Services

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