

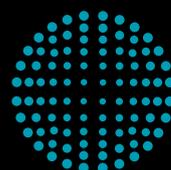


Next Generation Tableting Technology

F E75



**CONTAINMENT
GUARD**



**FETTE
COMPACTING**
be efficient

How do you achieve high performance...

... when you need high production counts even with demanding products? The rule used to be that the higher the required yield, and the more difficult the material that had to be pressed, the bigger the machine had to be if it was to do the job with the necessary quality.

The FE75 sets standards in this field. With a maximum output of more than 1.6 million tablets an hour, and a footprint of only 2 m², it offers an optimum ratio of production rate to space requirement. Four pairs of pressure rollers, in combination with FS19[®] punches, allow compression dwell times up to 166 percent longer when direct pressing. A novel, patented method for turret exchange and the Fette Compacting TRI.EASY design provide uniquely easy operation.

Discover the next generation of tableting technology.



reddot award 2015
winner



Fette Compacting FE75 – the standard for the production of large batches

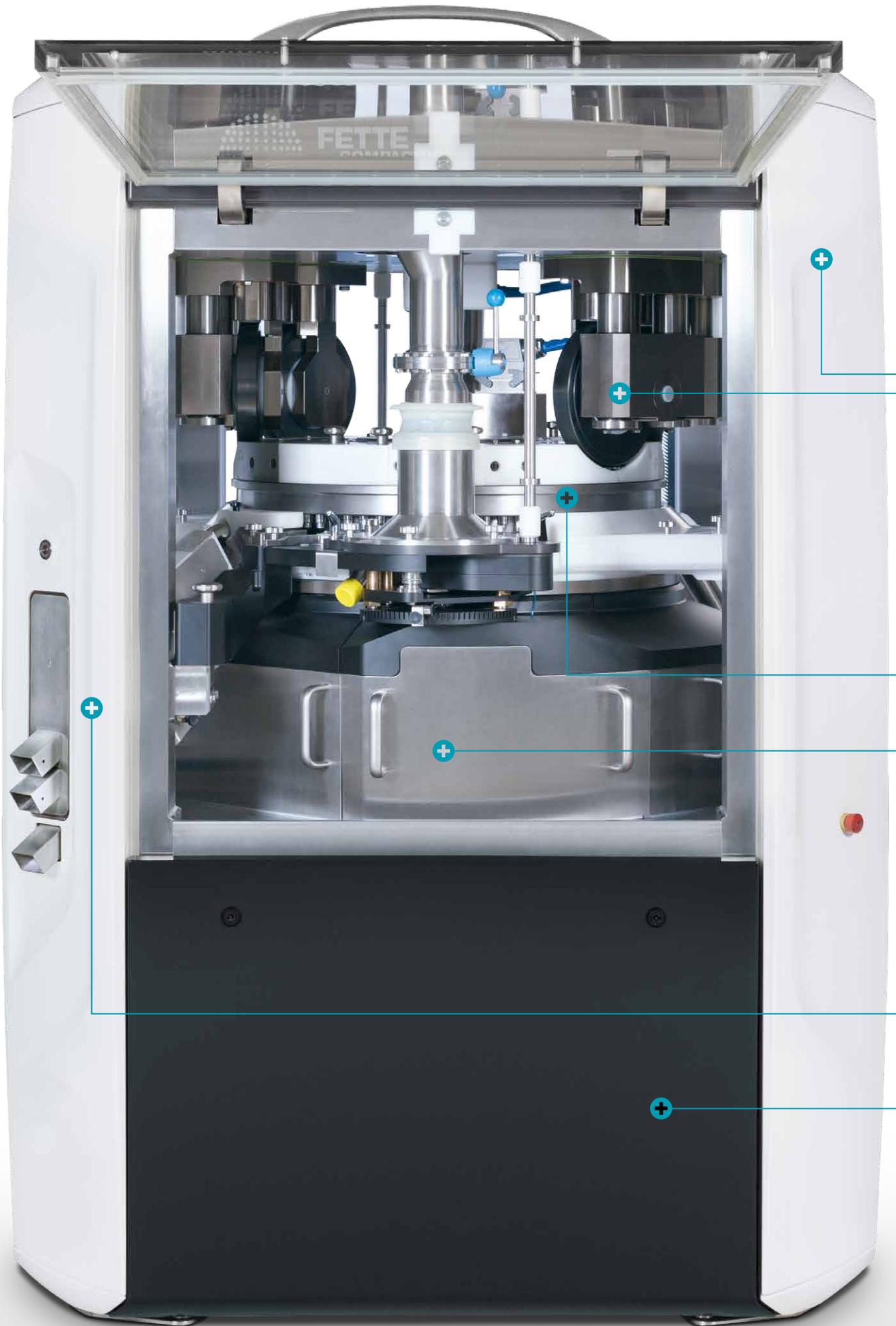


FETTE
COMPACTING

When top-quality and high-performance are needed, the FE75 is the best choice. With up to 115 punch stations and a maximum output of more than 1.6 million tablets, it sets standards for productivity in tableting:

- + Innovative filling system for easy, reliable feeding even of difficult product formulations
- + Up to 166 % longer at dwell time pressure when direct pressing in combination with FS19® punches
- + The only double rotary tablet press of its size and class for the production of single- and bi-layer tablets, as well as the capacity for direct pressing
- + Pneumatically regulated product scraper
- + Hassle-free internal tablet discharge
- + Patented method for easy, fast turret exchange
- + Separate lubrication systems for punch head and shaft and a closed cam system reduce cleaning work
- + Optimized aspiration system
- + Vibration damping through pneumatic suspension in the machine feet





FE75 – Innovations for your productivity



Innovative compression stations

- + Smooth-running compression rollers for ultra-simple handling
- + Four identical compression rollers
- + Single, direct compression and bi-layer compression
- + Direct compression with intermediate pressure of the compression stations 2 and 3
- + Compression with identical compression rollers and filling devices

- + Up to 166 % more dwell time utilizing FS19® punches
- + Patented system allows sampling of the first layer in less than four seconds during production
- + Compression rollers can be moved quickly to a parking position for easy turret exchange
- + Extremely easy load cell exchange during product changeovers

Machine Design

- + Housing of FDA-certified, high-performance polymer
- + Geometrically optimized surfaces for the easiest possible handling and fast cleaning
- + All product contact parts are made of stainless steel or FDA/GMP certified materials
- + Process Equipment Interface
- + Window flaps can be opened without disconnecting process equipment

Modern Torque-drive

- + High-performance torque direct drive
- + Maintenance-free and energy-efficient
- + External and integrated electrical cabinet for maximum flexibility
- + Power and control sections are separate
- + Electrical cabinet with innovative cooling concept
- + All process equipment and machine connections on a single panel

Innovative turrets

- + Patented turret changeover
- + With up to 115 punch stations in a footprint under 2 m²
- + Turret options for all applications
- + Easy turret exchange with cams and punches installed
- + Turret featuring coding ring for avoiding assembly errors
- + Fast format changeover thanks to segments
- + Coded tablet scraper
- + One central, multi-functional connector for oil, air, and electricity
- + Patented pneumatic product scraper
- + Separate lubrication systems for punch head and shaft and a closed cam system reduce cleaning work
- + Flexible use also of segment or die turrets

Unique tablet discharge

- + Easy operation
- + Significantly less floorspace thanks to novel tablet discharge through the column
- + 360 degree accessibility
- + Compact unit for swift and fast cleaning
- + Dust-proof design
- + Innovative and safe tablet sorting and sampling for maximum product security
- + Compact unit without cables or hoses
- + All product contact parts are made of stainless steel

- + Dust-proof and hermetically-sealed electrical cabinet – therefore no contact with ambient air

TRI.EASY Design – Ease of operation as the key to efficiency

The Fette Compacting TRI.EASY design permits uniquely easy and reliable operation. The idea behind it: Efficiency is only possible when the technology is equally easy in the three dimensions of operating, refitting and servicing.

The TRI.EASY design is oriented precisely around the needs of the user, offering comprehensive help to make every task more straightforward. A short learning curve and significantly more secure handling on the part of the operating personnel, ensure maximum product quality even with the most demanding tasks.

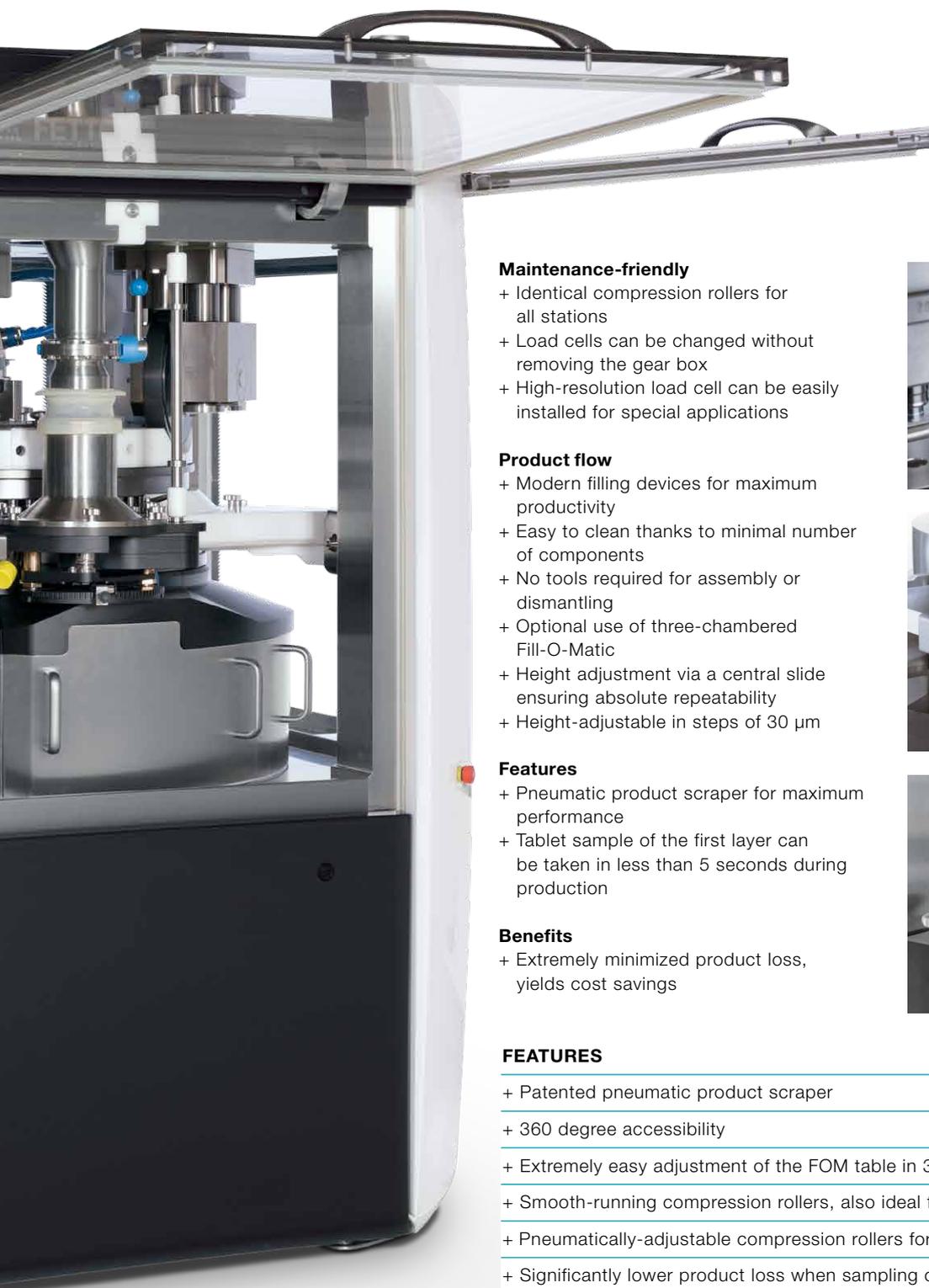
Features

- + Plug-and-Play design
- + Dismantling and assembly without tools
- + Machine controller detects the turret configuration
- + No external handling system required for turret exchanging

Benefits

- + Very easy handling since adjustments are no longer necessary
- + Fast, easy exchange and cleaning
- + Parameters are configured automatically
- + Easy turret change





Maintenance-friendly

- + Identical compression rollers for all stations
- + Load cells can be changed without removing the gear box
- + High-resolution load cell can be easily installed for special applications

Product flow

- + Modern filling devices for maximum productivity
- + Easy to clean thanks to minimal number of components
- + No tools required for assembly or dismantling
- + Optional use of three-chambered Fill-O-Matic
- + Height adjustment via a central slide ensuring absolute repeatability
- + Height-adjustable in steps of 30 µm

Features

- + Pneumatic product scraper for maximum performance
- + Tablet sample of the first layer can be taken in less than 5 seconds during production

Benefits

- + Extremely minimized product loss, yields cost savings



FEATURES

-
- + Patented pneumatic product scraper
 - + 360 degree accessibility
 - + Extremely easy adjustment of the FOM table in 30 µm steps
 - + Smooth-running compression rollers, also ideal for low compression forces
 - + Pneumatically-adjustable compression rollers for first-layer sampling
 - + Significantly lower product loss when sampling of first-layer
 - + 250 mm diameter pressure rollers for maximum compression dwell time
 - + Control components are separate from power components
 - + Fewer plug-in connections mean easier assembly
 - + Dust-proof and hermetically sealed electrical cabinet
 - + Coded turret allows controller to detect configuration
-

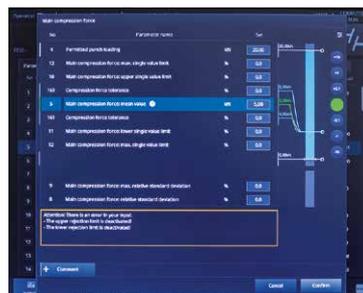
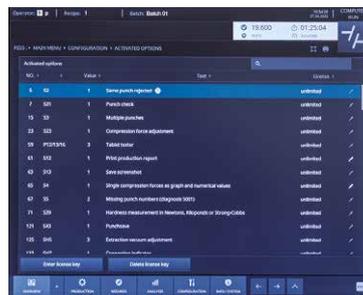
Fette Compacting HMI – Easy and safe operation guaranteed



HMI software to support the operation

New Visual 8 operating software from Fette Compacting

- + New 19" "Touch Only" machine operation
- + Country-specific keyboard layouts possible, unique tactile feedback
- + Touch sensitive keys for start, stop and special functions with feedback for easy operation
- + Ultra Vision screen display for maximum contrast even in difficult lighting conditions
- + Microsoft Windows embedded operating system, future-proof operating system
- + SQL Server database, Real-time intelligence
- + Dust-tight USB port, no mechanical drives
- + All surfaces easy to clean, no ventilation slots or openings, ergonomic operator height



Access to the main turret functions

- + Missing punches and punches that need to be rejected can easily be selected with a touch
- + Ready-grouped parameters for easy operation
- + Hot-keys for quick adjustment of the most important parameters
- + Drag and drop parameter lists for an individualized view
- + Search function within the parameter list
- + Different input dialogs for particular parameters
- + A comment line can be used for each individual parameter
- + Critical parameters can only be changed in conjunction with another operator (as a second set of eyes)

FEATURES

- + Clear process graphics showing all necessary parameters
- + New Visual 8 operating software
- + Individually configurable parameter lists
- + New 19" "Touch Only" machine operation
- + Terminal made of FDA-certified high-performance polymer
- + HMI and software identical for the entire FE Series

BENEFITS

- + Easy, intuitive operation through self-explanatory pictograms
- + Direct access to Fette Compacting presses
- + Fast, easy machine operation
- + Country specific keyboard layouts possible
- + Smooth, easily cleaned surfaces
- + Intuitive operation of the FE Series for the user



Optional Containment Package



Maximum operative protection is the key feature of Fette Compacting's containment concept. The need for the highest possible operative safety during tableting can only be achieved through the right technological solutions and tablet manufacture that is largely automated. A tablet press has to compress powders and granulates securely and efficiently.

The tableting process is fully automated. The containment is never interrupted – from filling the machine right through to the removal of the tablets. In the event that the machine stops it must be possible for the operative to access the tablet press manually from all sides without breaking the containment.

Glove ports and rapid transfer ports in window flaps are the most important techniques for achieving this. The containment system from Fette Compacting has been developed for maximum operative safety and system security. All the glove ports and window flaps are linked into the safety control system, from where they are monitored. Incorrect operation is almost impossible.

Product feed through a containment flap system

- + Receiving frame for decoupling vibrations from the product feed and the flap valve
- + HEPA H13 supply air filter
- + Pressure sensor for continuous, real-time monitoring of the positive pressure for maximum safety
- + Sensor-monitored, switchable vacuum system for preliminary manual cleaning by means of a hand vacuum hose and standard vacuum extraction for production operation

Rapid Transfer Port

- + The rapid transfer port (RTP) allows material to be introduced to and removed from a containment system
- + Tools, punches and filling cams can be introduced under containment conditions

New window flaps

- + Double safety barrier system
- + Window flap sensors for opening, closing and pneumatically locking the window flaps
- + The individual window flaps are monitored, and their status displayed, at the HMI

Compression chamber optimally designed for cleaning

- + Reduced dust exposure through optimum compression chamber design
- + Maximum operative protection
- + No dust outside the machine
- + All parameters adjustable from the HMI
- + The compression chamber is dust-proof

Glove ports

- + Safety sensor in every glove port for maximum operative safety
- + Ergonomic design
- + The whole of the interior of the compression chamber can be reached
- + Tools and/or filling cams can be introduced under containment conditions





FEATURES

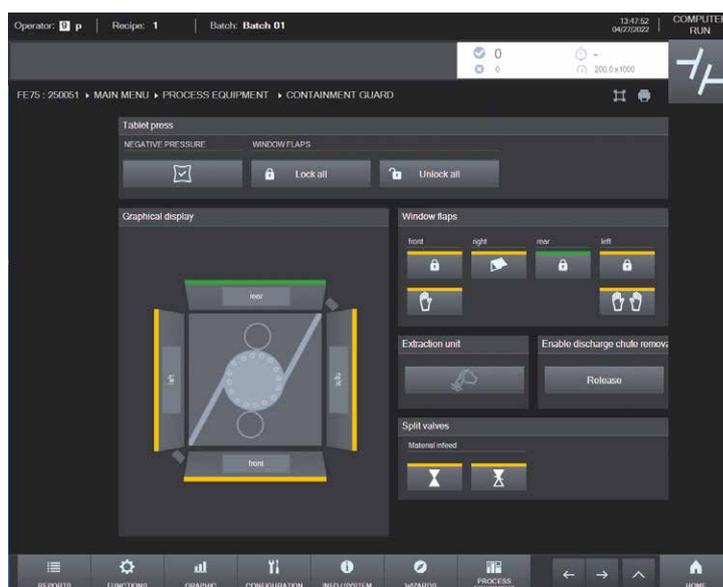
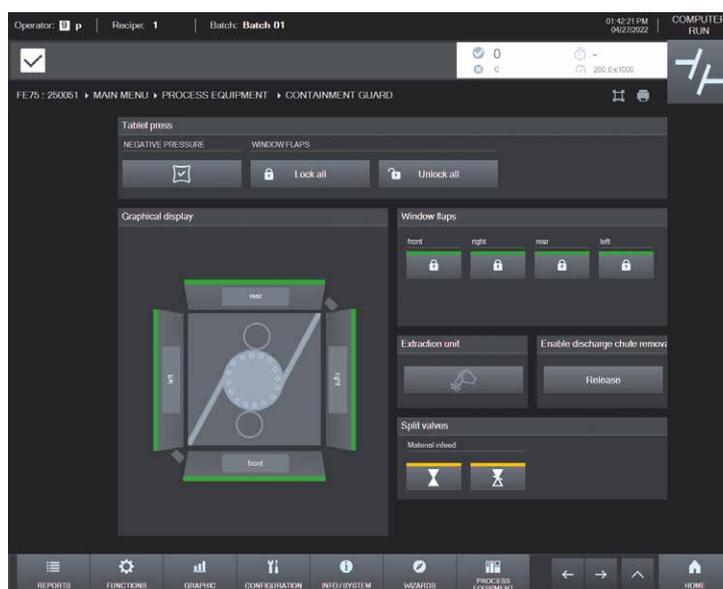
- + It is possible to avoid the release of dust during manufacture, preparation for cleaning or other interaction under containment conditions, and without interruption of the containment
- + No contact with toxic products
- + Dust-proof compression chamber inside the machine
- + Fail-safe operation and control of the machine
- + Fail-safe locking of all four window flaps

BENEFITS

- + Special safety clothing is not necessary during production, saving both cost and time
- + Operatives are protected from dirt and contamination
- + Safe environment during manufacture
- + Maximum operative safety during the entire production process, reduce costs in operation
- + Ideal, reliable protection

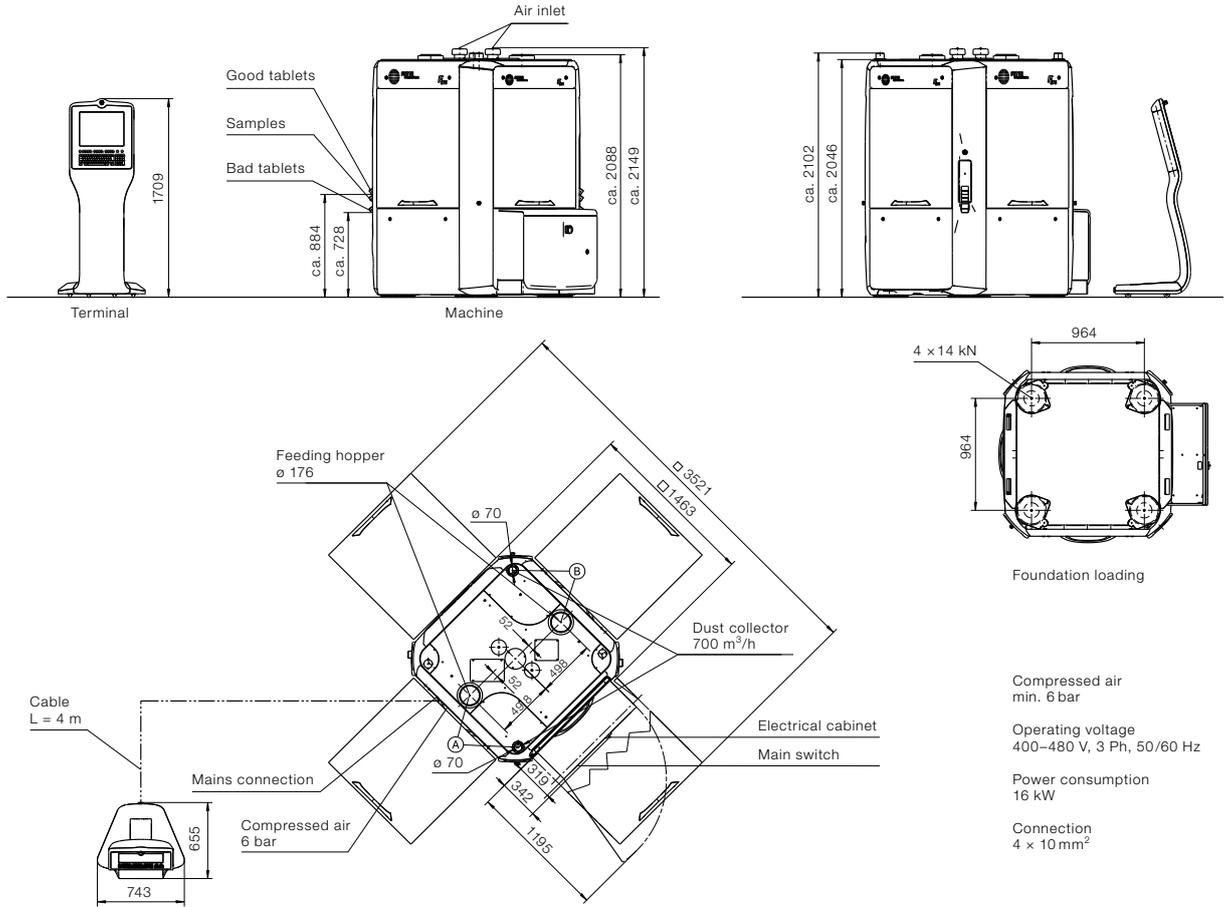


- + Maximum safety through monitoring at the operative level
- + Only authorized operatives can access the containment controls
- + Access to the control system for locking and unlocking
- + Access to the controller for monitoring the glove ports
- + Logging all operative input and changes to the log
- + Sensor for low pressure monitoring
- + Individual locking and unlocking of the window flaps
- + Fail-safe locking of all four window flaps
- + Display of the switchable extraction equipment
- + Can be switched between extraction system in the machine and vacuum hose
- + Audible and visual safety instructions in the event of a leak
- + Individual monitoring system for every glove port

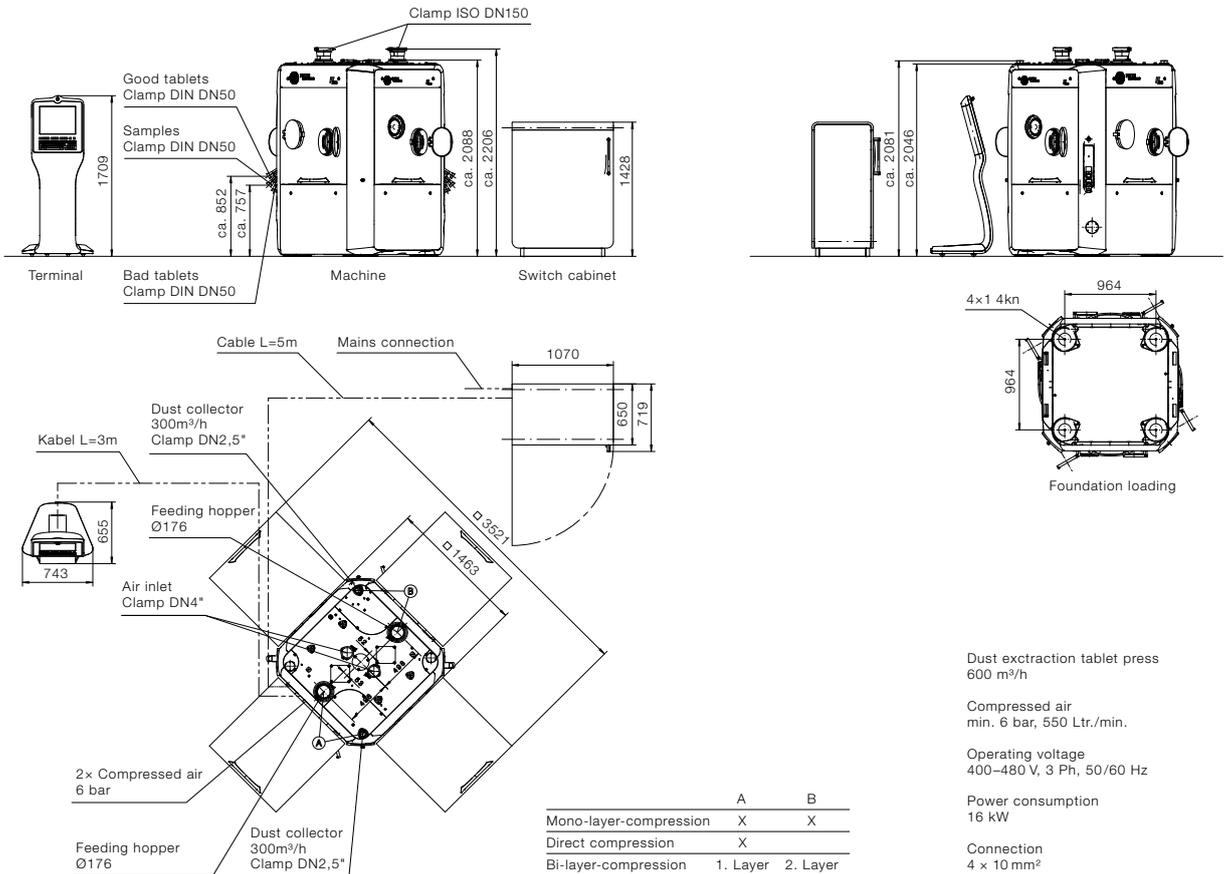


Dimensions

Standard floor plan



Containment floor plan



Segments (S) / Dies (D)		S	S	S	D	D	D
Number of punch stations		115	75	55	75	63	51
Punch type		FS12®	FS19® EU19 FS® EU19 TSM19	EU1" EU1"-441 TSM1"	FS19® EU19 FS® EU19 TSM19 BB	FS19® EU19 B	EU1" EU1"-441 TSM1" D
Tablet output units/h	min.	207,000	135,000	99,000	135,000	113,400	91,800
	max.	1,656,000	1,080,000	594,000	1,080,000	907,200	550,800
Max. compression force 1*	kN	34	100	100	100	100	100
Max. compression force 2*	kN	34	100	100	100	100	100
Max. compression force 3*	kN	34	100	100	100	100	100
Max. compression force 4*	kN	34	100	100	100	100	100
Max. tablet diameter	mm	11	18	25	18	18	25
Max. filling depth 1st layer**	mm	20	20	20	18	18	18
	2nd layer	mm	8	8	8	8	8
Pitch circle diameter	mm	710	710	710	710	710	710
Turret rotation speed min.	min ⁻¹	15	15	15	15	15	15
	max.	min ⁻¹	120	120	90	120	120
Segment / Die height	mm	25	25	25	22.225	30.16	23.8
Die diameter	mm				22	30.16	38.1
Punch shaft diameter	mm	12	19	25.35	19	19	25.35
Punch length Upper/lower punch	mm	133.6	133.6 (133.35)	133.6 (133.35)	133.35	133.6 (133.35)	133.6
Upper punch insertion depth	mm	1-4 (8***)	1-4 (8***)	1-4 (8***)			
Dimensions	mm	1,463 × 1,463 × 2,046 without integrated switch cabinet 1,463 × 1,778 × 2,046 with integrated switch cabinet					
Weight		Tablet press 5,300–5,500 kg, operating terminal 100 kg, switch cabinet 350 kg					
Electrical supply parameters		Operating voltage 400–480 V, 50/60 Hz, power consumption 16 kW					

Theoretical values or technical limits: These can vary in practice, according to product and application.
Tablet thickness is a size dependent on product and can strongly vary.

* limited by punch properties

** special filling depth available on request

*** 2-layer-operation

SmartInterface – Real-time data, at all times, and independent of location



Machine monitoring in real time

The SmartInterface is a server based application enabling the monitoring of tablet press production parameters and HMI settings via mobile devices (Laptop, Tablet, Smartphone etc.). The user can obtain an overview of the current production and machine status **at any time and independent of location**, and download data and protocols, for example. This helps everyone involved in production to maintain full control of the manufacturing process. Operators can react faster to deviations as they are informed of the current status at all times. The application is available on all standard web browsers via the company's network. Accordingly, only the user's own IT security guidelines apply.

KEY BENEFITS

- + Retrieve data at any time and from anywhere, even in editable formats such as Excel, without blocking the machine or impacting production
- + Process acceleration through easy and fast access to production parameters and HMI settings
- + Data update <1s (dependent on the customer network and capacity utilization)
- + Less ways to the machine and personal protective equipment required
- + Access subject to the customer's IT security guidelines
- + Access rights also based on HMI access rights
- + No validation-relevant change in case of a later upgrade



Process graphic

The process graphic offers in-house monitoring of production parameters in real time.

Monitoring all process data

The monitoring functions can be used to record and export all process values and utilize them for analyses.

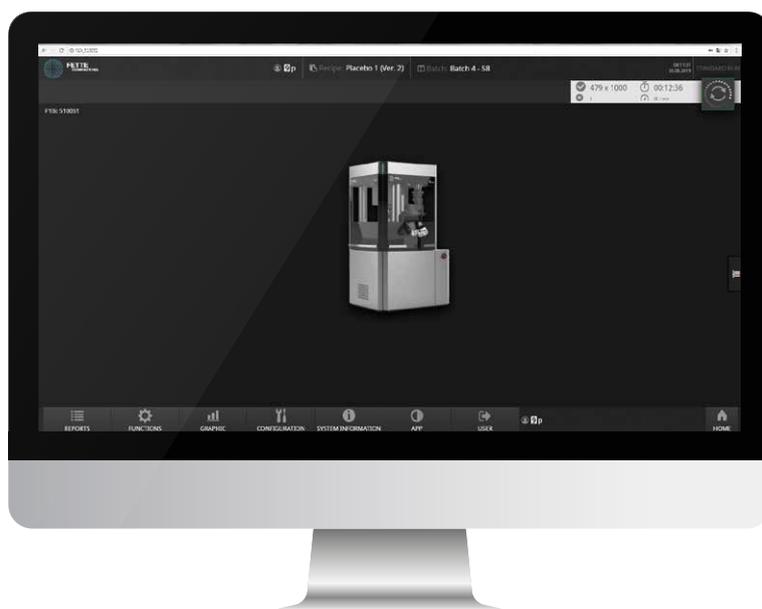
KPI dashboard

The KPI dashboard provides an overview of the current production and machine status.



TECHNICAL REQUIREMENTS

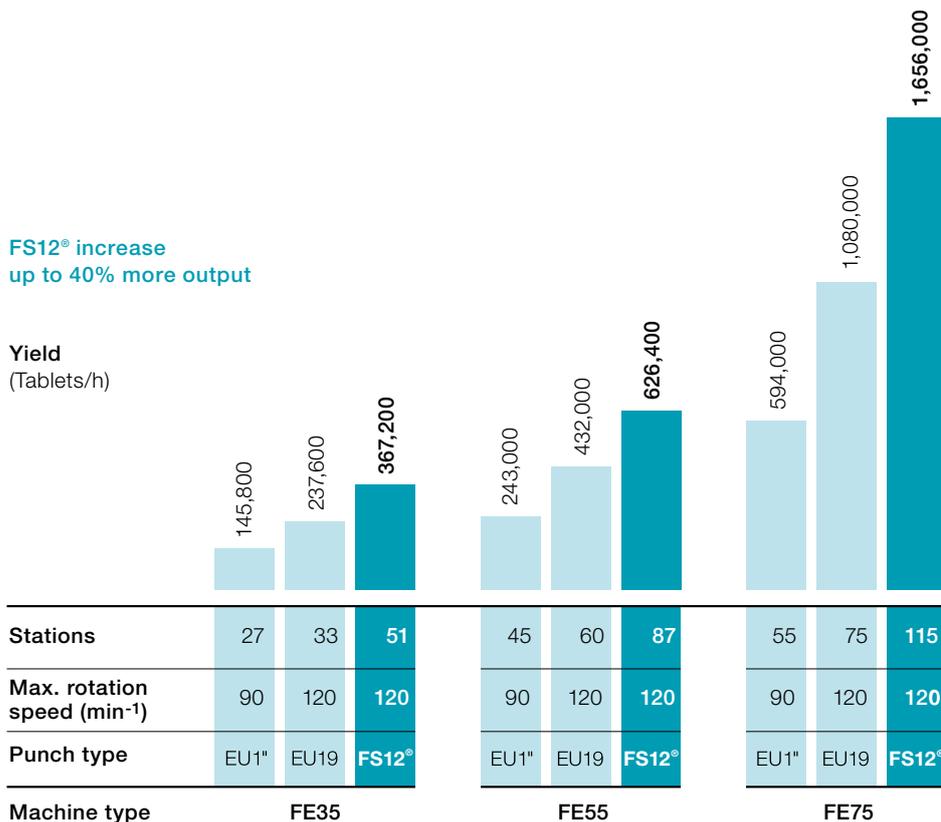
- + Compatible machine types with HMI software level Visual 7 or higher (FE Series, new i Series, FE CPS)
- + FE Series: Using or upgrading to an APC910 unit enables full functionality and performance
- + FE Series: When using an APC810 unit test operation is possible
- + The machine must be integrated in an IT network (TCP/IP)
- + The mobile device must be within the machine network or communication (e.g. via network routes) must be possible
- + The appropriate firewall rules must be entered connection specific



Pmax[®] turret – more production capacity without higher investments

FS12[®] increase
up to 40% more output

Yield
(Tablets/h)



Stations	27	33	51	45	60	87	55	75	115
Max. rotation speed (min ⁻¹)	90	120	120	90	120	120	90	120	120
Punch type	EU1"	EU19	FS12 [®]	EU1"	EU19	FS12 [®]	EU1"	EU19	FS12 [®]
Machine type	FE35			FE55			FE75		

FEATURES

- + Optimized punch head
- + Higher number of punches per compression
- + More punches at the same time under the compression station
- + No further machine investments necessary
- + Production parameters and characteristics stay unchanged
- + Single tablet rejection of bad tablets
- + Single compression force measurement even with small tablet diameters

BENEFITS

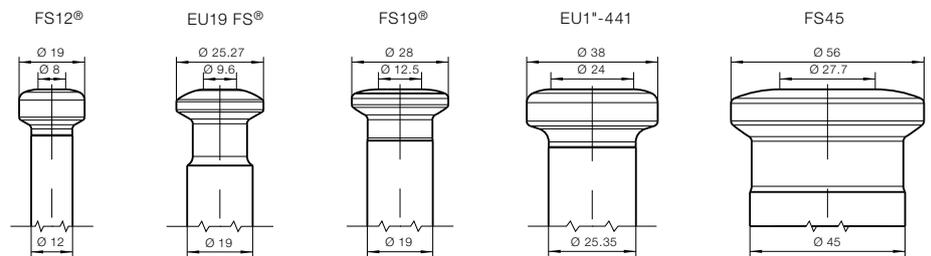
- + Long dwell times
- + Up to 40 % higher output
- + Smooth machine running
- + Higher return on investment
- + No further machine adjustments necessary
- + 100 % quality assurance through in-process-control
- + Approved alternative to multi-tip tooling

Whether round tablets, special shapes, relief moldings, concavities or break lines – Fette Compacting can handle the full range of customer requirements. To ensure maximum output and flexibility, we offer punches in all sizes and types. For customers with special demands on their production, we particularly recommend the FS® products.

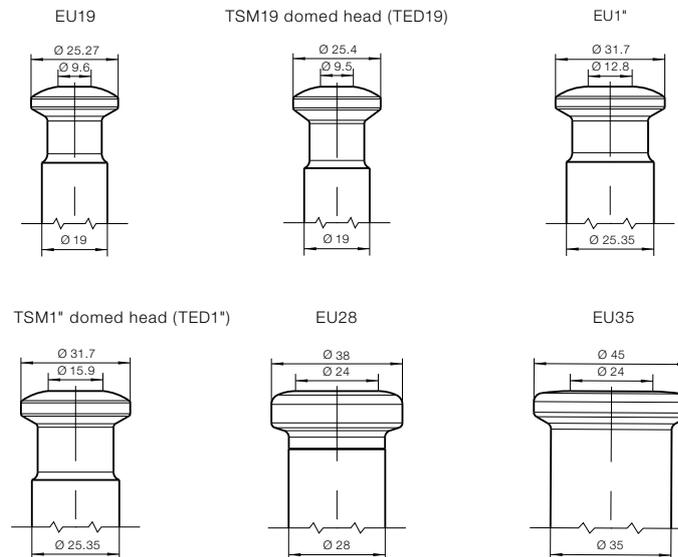
It is not just the diameter of the contact area that is critical; but furthermore the optimised transition geometries into the head radius which are featured by our FS® technology transmit the compression forces in an optimum way.

Fette Compacting – Punch head types

FS Technology®



Standard



All measurements are in mm

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