Next Generation Tableting Technology

FE55

CONTAINMENT GUARD

FETTE COMPACTING
be efficient

How do you produce efficiently…

…when you want to cover very different requirements with one machine type?

The FE55 is the only machine in its performance class with which users can manufacture, as standard, more than 90 % of all products without additional investment or complexe refitting. With up to 87 punches in 1.6 square meters, it offers a unique ratio of punch count to footprint. Therefore, it sets standards for the three central factors of efficiency in tableting – productivity, flexibility and availability. And the Fette Compacting TRI.EASY design ensures ease of use when operating, refitting or servicing.

Discover the next generation of tableting technology.

reddot design award
winner 2012

Fette Compacting
FE55 – The standard for efficiency in tableting

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

+ Innovative filling system for easy and safe feeding of even complex product blends

+ Up to 50 % higher production output thanks to unique ratio of punch stations to footprint (up to 87 punch stations on 1.6 m²)

+ The only machine of this size for the production of single- and bi-layer tablets as well as offering the possibility of direct compression

+ Unique, patented system for first layer sampling during production

+ Innovative internal tablet discharge for guaranteed smooth production

FE55 – Innovations for your productivity

Machine design
+ Housing made of FDA-certified high-performance polymer
+ Optimal geometric surfaces for easy handling and fast cleaning
+ All product contact parts are made of stainless steel or FDA/GMP certified materials
+ 360 degree accessibility
+ Window flaps can be opened without disconnecting Process Equipment

Innovative compression stations
+ Smooth-running compression rollers for ultra-simple handling
+ Three compression rollers for the ultimate flexibility
+ Single, direct compression and bi-layer compression
+ Direct compressing using a third compression roller
+ Bi-layer tableting with identical compression rollers and filling devices
+ 83 % longer compression dwell time in combination with 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

Modern Torque-drive
+ High-performance, direct torque drive
+ Maintenance-free and energy-efficient
+ Alternatively external or 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 turret
+ Unique ratio of punch count to footprint guarantees maximum flexibility
+ Compression rollers can be driven into parking position for easy turret change
+ Turret options for all applications
+ Easy turret exchange with cams and segments
+ Fast format changeover thanks to segments installed
+ Coded tablet scraper
+ Turret featuring coding ring for avoiding assembly errors
+ One central, multi-functional connector for oil, air and electricity
+ Flexible use also of segment or die turrets

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

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

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 exchange

Benefits
+ Very easy handling since adjustments are no longer necessary
+ Fast, easy exchange and cleaning
+ Parameters are configured automatically

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 4 seconds during production

Benefits
+ Extremely minimized product loss, yields cost savings

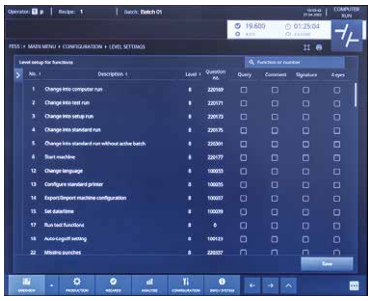
FEATURES

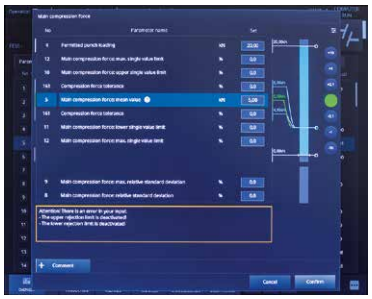
+ 360 degree accessibility
+ Extremely easy adjustment of the FOM table in 30 µm steps
+ Smooth-running compression rollers, also ideal for low compression forces
+ Pneumatically-adjustable compression rollers for first-layer sampling
+ Significantly lower product loss when sampling of first-layer
+ 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

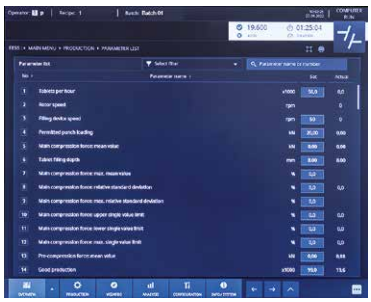
Fette Compacting HMI – Easy and safe operation guaranteed

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 indifficult 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	BENEFITS
+ Clear process graphics showing all necessary parameters	+ Easy, intuitive operation through self-explanatory pictograms
+ New Visual 8 operating software	+ Direct access to Fette Compacting presses
+ Individually configurable parameter lists	+ Fast, easy machine operation
+ New 19" “Touch Only” machine operation	+ Country specific keyboard layouts possible
+ Terminal made of FDA-certified high-performance polymer	+ Smooth, easily cleaned surfaces
+ HMI and software identical for the entire FE Series	+ Intuitive operation of the FE Series for the user

Optional Containment Package

CONTAINMENT
GUARD

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

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

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

FETTE
COMPACTING
FE55
FETTE
COMPACTING

CONTAINMENT
GUARD

FEATURES	BENEFITS
+ 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	+ Special safety clothing is not necessary during production, saving both cost and time
+ No contact with toxic products	+ Operatives are protected from dirt and contamination
+ Dust-proof compression chamber inside the machine	+ Safe environment during manufacture
+ Fail-safe operation and control of the machine	+ Maximum operative safety during the entire production process, reduce costs in operation
+ Fail-safe locking of all four window flaps	+ 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

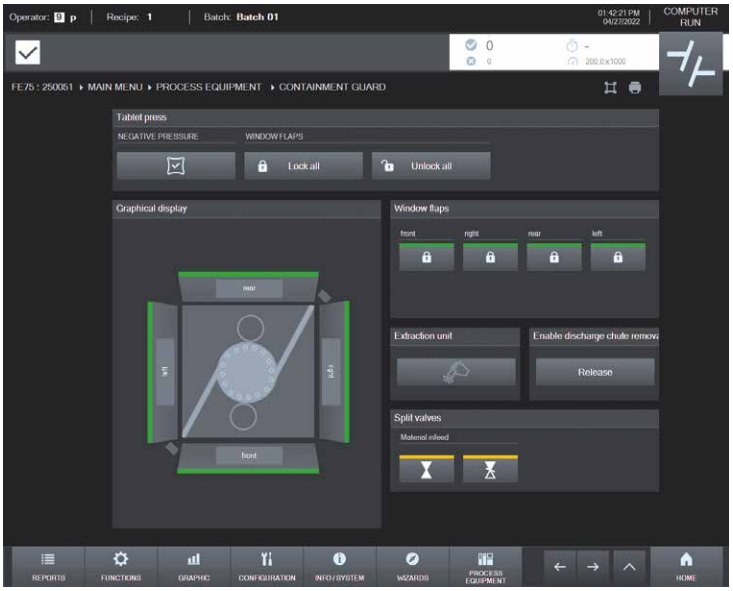
+ Fail-safe locking of all four window flaps

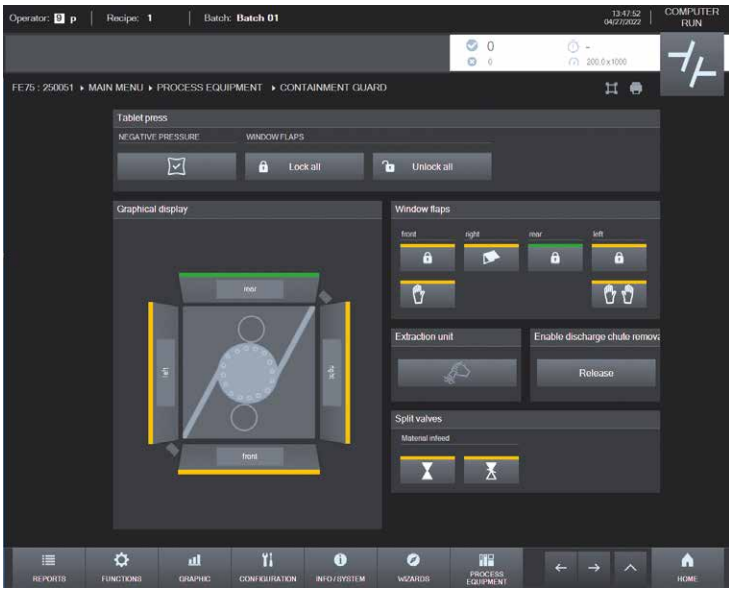
+ Display of the switchable extraction equipment

+ Can be switched between extraction system in the machine and vacuum hose

+ Audible and visual safety instructions in the event of a leak

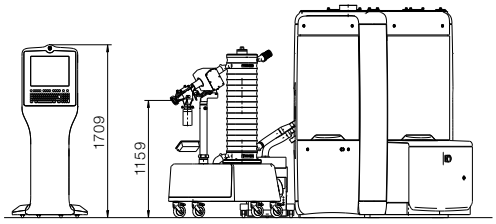
+ Individual monitoring system for every glove port

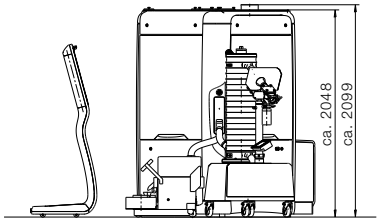


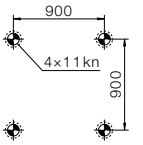


Dimensions

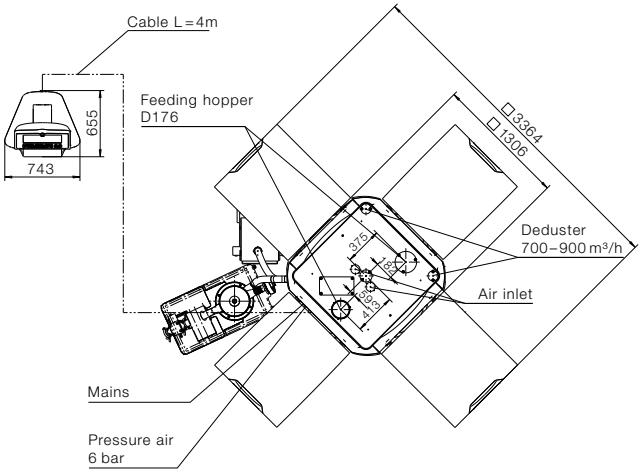
Standard floor plan







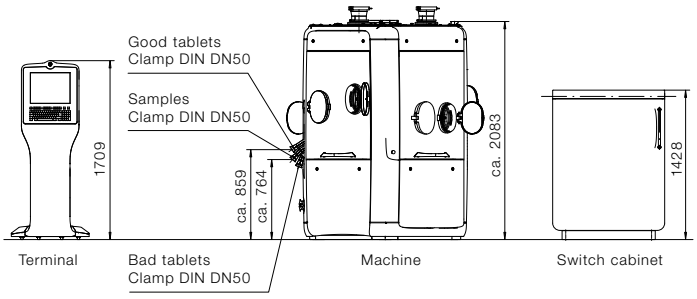
Foundation loading

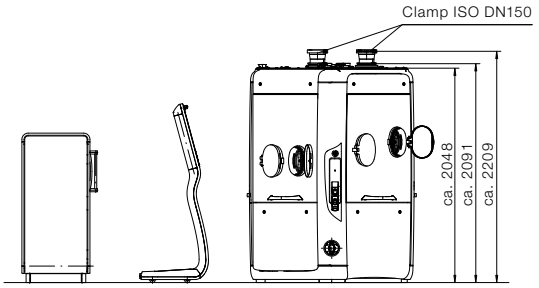


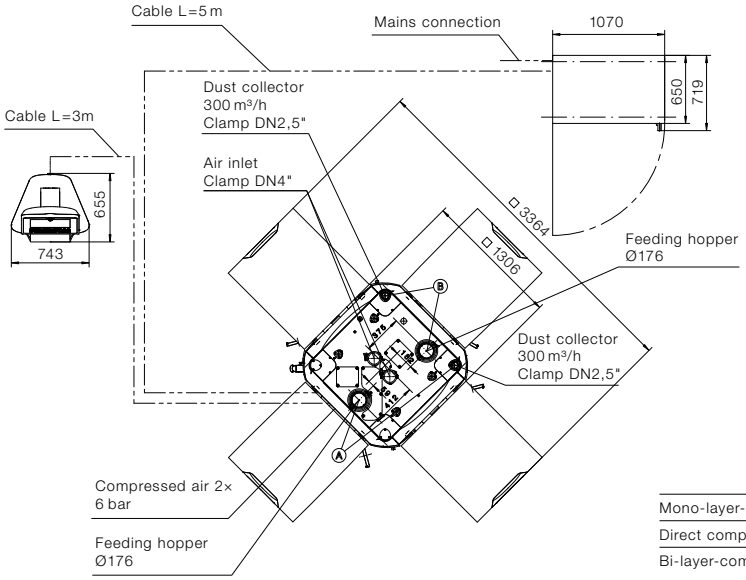
Pressure air min 6 bar for turret clamping system
+ Dosing head
+ Option: air reject system

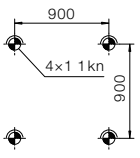
Main 400 / 440 / 480 V – 50–60 Hz
Connection 4 × 10 mm²

Containment floor plan









Foundation loading

	A	B
Mono-layer-compression		X
Direct compression	X	
Bi-layer-compression	1. Layer	2. Layer

Dust extraction tablet press
600 m³/h

Compressed air min.
6 bar, 550 Ltr./min.

Operating voltage
400–480 V, 3 Ph, 50/60 Hz

Power consumption
16 kW

Technical Data

Segments (S) / Dies (M)		S	S	S	D	D	D
Number of punch stations		87	60	45	58	47	39
Punch type		FS12®	FS19®/ EU19 FS®/ EU19 TSM19	EU1"/ EU1"-441 TSM1"	FS19®/ EU19 FS®/ EU19 TSM19 BB	FS19®/ EU19 FS®/ EU19 TSM19 B	EU1" EU1"-441 TSM1" D
Tablet output units/h	min.	78,300	54,000	40,500	52,200	42,300	35,100
	max.	626,400	432,000	243,000	417,600	338,400	210,600
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. 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	8
Pitch circle diameter	mm	550	550	550	550	550	550
Turret rotation speed min.	min^{-1}	15	15	15	15	15	15
max.	min^{-1}	120	120	90	120	120	90
Segment / Die height	mm	25	25	25	22.225	22.225	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)	133.6 (133.35)	133.6 (133.35)	133.6 (133.35)
Upper punch insertion depth	mm	1–4 (8***)	1–4 (8***)	1–4 (8***)	1–4 (8**)	1–4 (8**)	1–4 (8**)
Dimensions	mm	1,306 × 1,306 × 2,048 without integrated switch cabinet 1,306 × 1,626 × 2,048 with integrated switch cabinet					
Weight		Tablet press 3,700 – 3,900 kg, operating terminal 100 kg, switch cabinet 350 kg					
Electrical supply parameters		Operating voltage 400 – 480 V, 50/60Hz, 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.

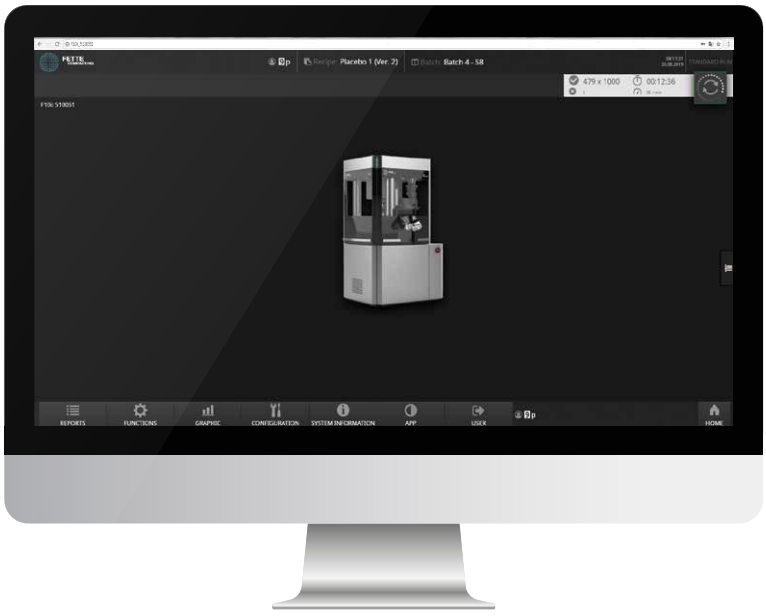
KEY BENEFITS

+ 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.

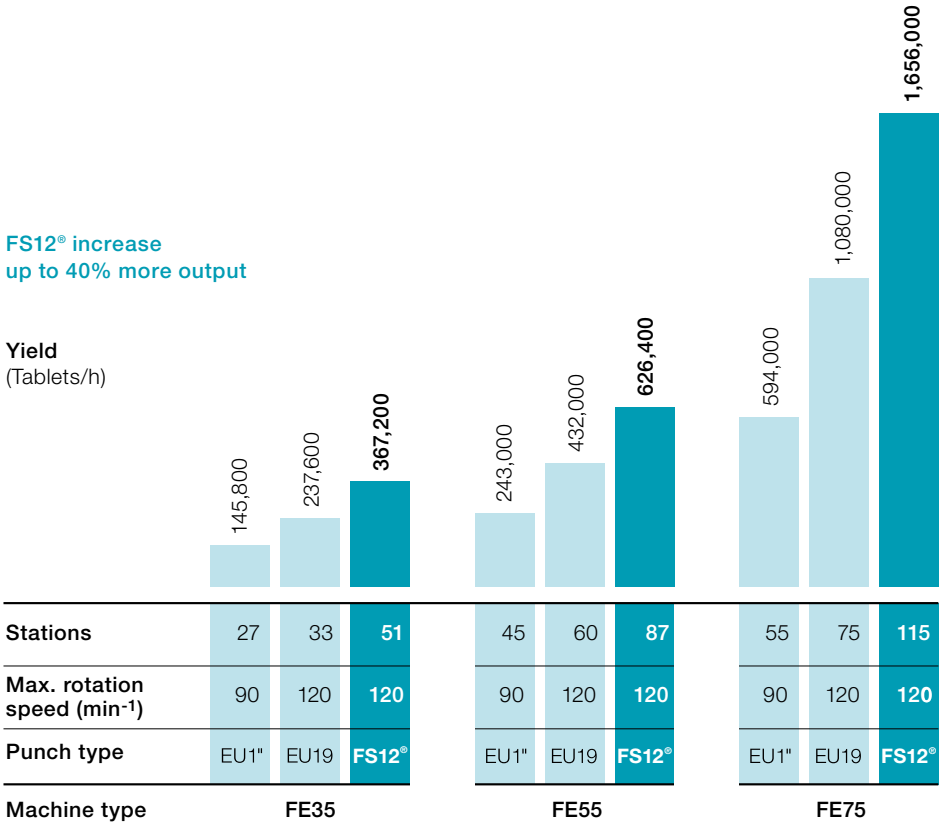


TECHNICAL REQUIREMENTS

+ 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



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	**BENEFITS**
+ Optimized punch head	+ Long dwell times
+ Higher number of punches per compression	+ Up to 40 % higher output
+ More punches at the same time under the compression station	+ Smooth machine running
+ No further machine investments necessary	+ Higher return on investment
+ Production parameters and characteristics stay unchanged	+ No further machine adjustments necessary
+ Single tablet rejection of bad tablets	+ 100 % quality assurance through in-process-control
+ Single compression force measurement even with small tablet diameters	+ Approved alternative to multi-tip tooling

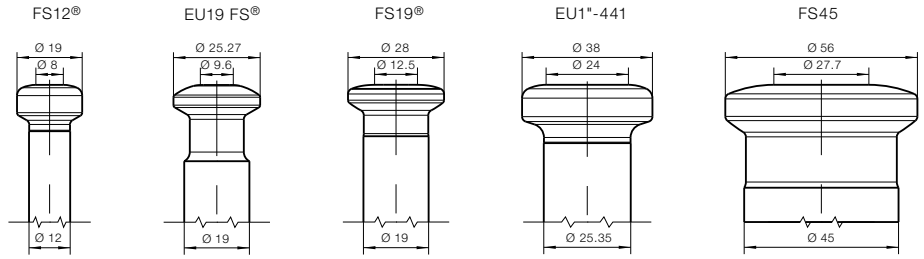
Punch portfolio

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.

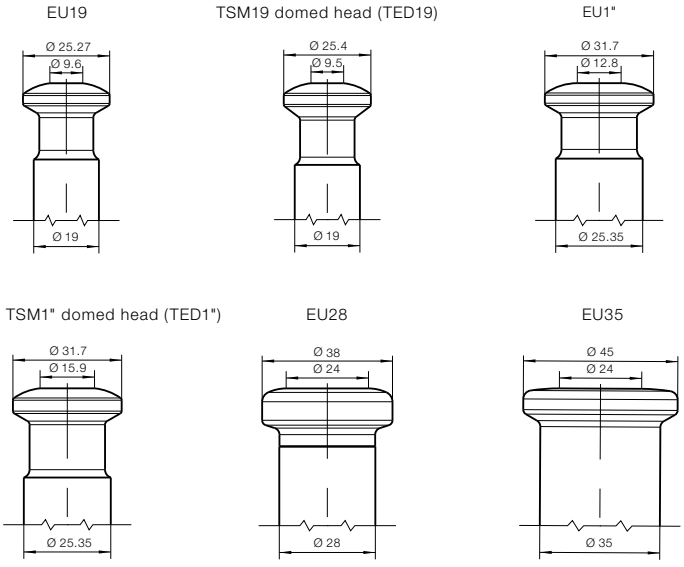
It is not just the diameter of the contact area that is critical; but furthermore the optimised transition geometries into the head radius which are featured by our FS® technology transmit the compression forces in an optimum way.

Fette Compacting – Punch head types

FS Technology®



Standard



All measurements are in mm

© by Fette Compacting GmbH
This publication may not be reprinted in whole or part without our express permission. All right reserved. No rights may be derived from any errors in content or from typographical or typesetting errors. Diagrams, features and dimensions represent the current status on the date of issue of this leaflets. We reserve the right to make technical changes. The visual appearance of the products may not necessarily correspond to the actual appearance in all cases or in every detail.

220630 E

Fette Compacting GmbH
Grabauer Strasse 24
21493 Schwarzenbek, Germany
Phone +49 4151 12-0
Fax +49 4151 3797
tablet@fette-compacting.com

Fette Compacting America, Inc.
400 Forge Way
Rockaway N.J. 07866, USA
Phone +1 973 5868722
Fax +1 973 5860450
sales@fetteamerica.com

Fette Compacting America Latina Ltda.
Av. Cambacica, 1200 módulo 10
Parque Imperador
CEP 13097-160
Campinas / SP, Brazil
Phone / Fax +55 19 37969910
contato@fette-compacting.com.br

Fette Compacting Mexico, SA de CV
Adolfo Prieto No. 1638
Colonia Del Valle Sur
03100 Mexico, DF, Mexico
Phone +52 55 40000653
tablet@fette-compacting.com

Fette Compacting (China) Co., Ltd.
No. 9 Shengtong Road,
Moling Sub-District,
Jiangning Development Zone,
211111 Nanjing
Jiangsu Province, P.R.C., China
Phone +86 25 52121818
Fax +86 25 52129951
fcn@fette-compacting.com

Fette Compacting Machinery India Private Limited
A - 406 /407, 4th floor, Atrium 215,
Next to Hotel Courtyard Marriott,
Near J. B. Nagar Metro station,
Andheri – Kurla Road, J. B. Nagar,
Andheri (East)
400 093 Mumbai, India
Phone +91 83 26750355
sales.in@fette-compacting.com

Competence Centre
Plot No S 115, Phase III B
Verna Industrial Estate
Verna, Goa 403 722, India
Phone +91 83 26750355

Fette Compacting Asia Pacific Pte Ltd.
107 Eunos Avenue 3, #01-01
Singapore 409837, Singapore
Phone +65 659 25654
Fax +65 654 71939
infoasiapacific@fette-compacting.com

Fette Compacting Ibérica SL
Avenida Labradores, 1
2ª Planta, Oficina 3
28760 Tres Cantos, Spain
Phone +34 91 8039689
Fax +34 91 3483052
fcib@fette-compacting.com

Fette Compacting France
1, Rue du Centre
93160 Noisy Le Grand, France
Phone +33 155 812121
Fax +33 155 812120
fcf@fette-compacting.com

Fette Compacting Belgium BVBA
Schaliënhoevedreef 1b
2800 Mechelen, Belgium
Phone +32 15 684260
Fax +32 15 684269
fcbe@fette-compacting.com

EuroPharma Machinery Ltd
Unit 12 Highview
Bordon, Hampshire, GU35 0AX
United Kingdom
Phone +44 1420 473344
Fax +44 1420 488030
admin@europharma.co.uk

Fette Compacting Middle East FZE
Jebel Ali Free Zone, Jafza
Lobby 14, Office 308, Dubai
United Arab Emirates
Phone +971 4 8808226
dubai@fette-compacting.com

Fette Compacting North-West Africa
Tour d'Affaire Nord, Centre Commercial
Bab Ezzouar – Regus 4ème Etg.
16000 Algiers, Algeria
Phone +213 770 117 007
fcnwa@fette-compacting.com

www.fette-compacting.com

FETTE COMPACTING
be efficient