

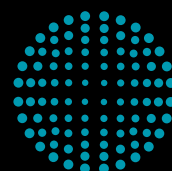


Next Generation Tableting Technology

# FE75



**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 new standards in this field. With a maximum output of more than 1.6 million tablets an hour, and a footprint of only 2 m<sup>2</sup>, it offers an optimum ratio of production rate to space requirement. Four pairs of pressure rollers, in combination with FS19<sup>®</sup> 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



**TECHNOLOGY** stands for everything we offer in production technology – from tablet presses and capsule filling machines through Process Equipment to tableting tools and format parts.

**SERVICE** covers all the services related to machines, Process Equipment and installations such as spare parts supply, plant modernization and technical field service department.

**COMPETENCE** is the overarching idea behind all our process-related services. This includes training, product trials, application and Performance Consulting as well as engineering.

# Fette Compacting FE75 – the new 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 new 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
- + AIO Interface on both sides of the machine
- + 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 m<sup>2</sup>
- + 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

## 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.

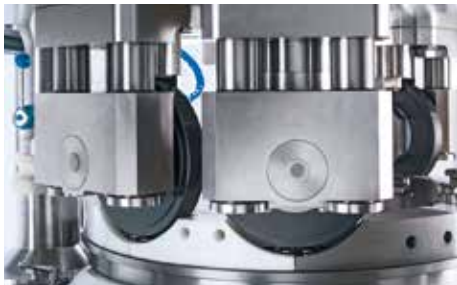
The TRI.EASY design is oriented precisely around the needs of the user, offering comprehensive help to make every task more straightforward. A short learning curve and significantly more secure handling on the part of the operating personnel, ensure maximum product quality even with the most demanding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

- + 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





The totally redeveloped HMI (Human Machine Interface) of the FE Series lets you keep an eye on all the parameters of the tablet press. The easy, intuitive operation guarantees you maximum efficiency and reliability.

- + 19" touchscreen for the best possible overview
- + Easy operation through full keyboard
- + Dust-protected USB connection
- + No mechanical disc drives
- + Win10® embedded operating system
- + Visual operating software from Fette Compacting
- + SQL Server database
- + Fast access to the most important functions through 12 pictogram buttons
- + All surfaces can be cleaned easily
- + 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
+ Backwards compatible hot-keys for machine operation	+ Direct access to Fette Compacting presses
+ Individually configurable parameter lists	+ Fast, easy machine operation
+ 12 fast-access pictogram buttons	+ Direct access to the main functions
+ 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



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

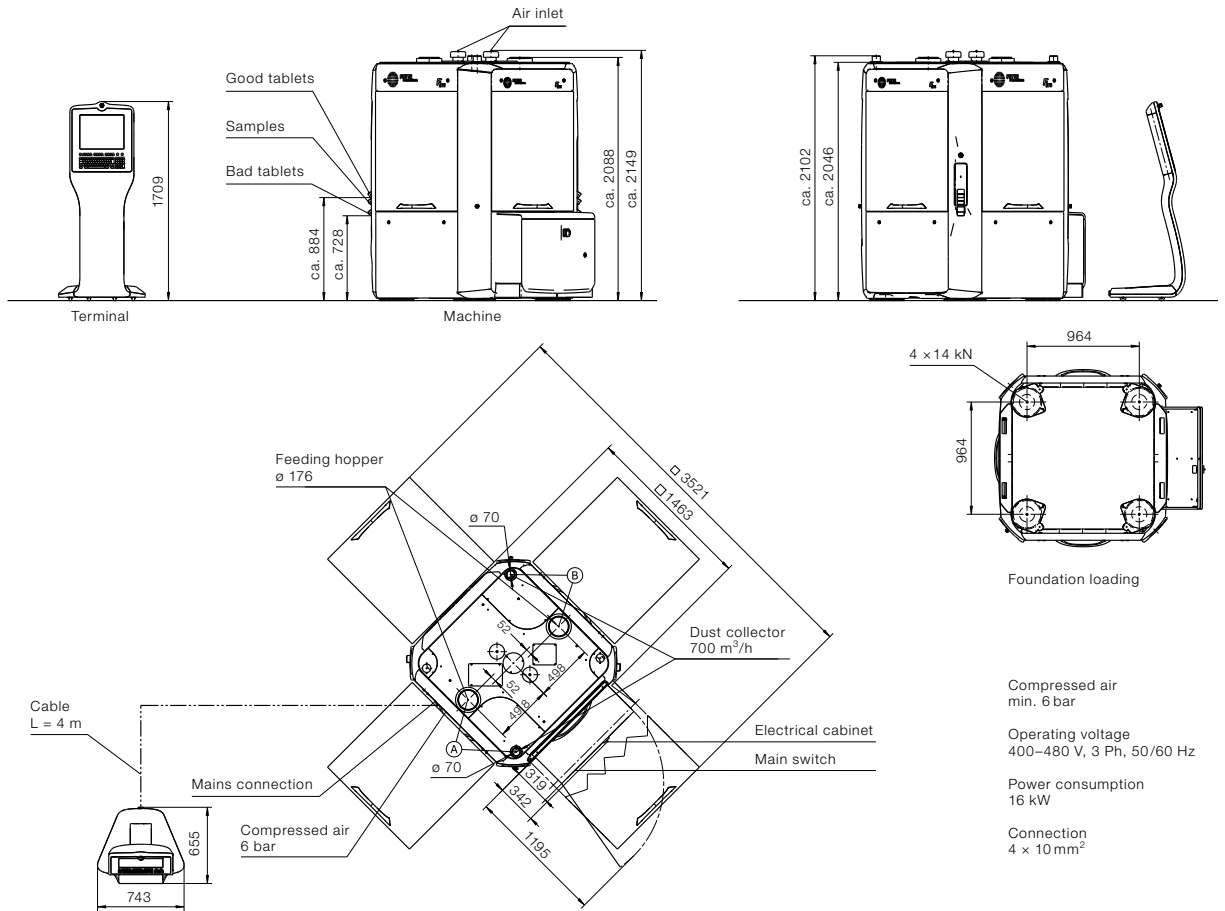
- + Maximum safety through monitoring at the operative level
- + Only authorized operatives can access the containment controls
- + Access to the control system for locking and unlocking
- + Access to the controller for monitoring the glove ports
- + Logging all operative input and changes to the log
- + 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



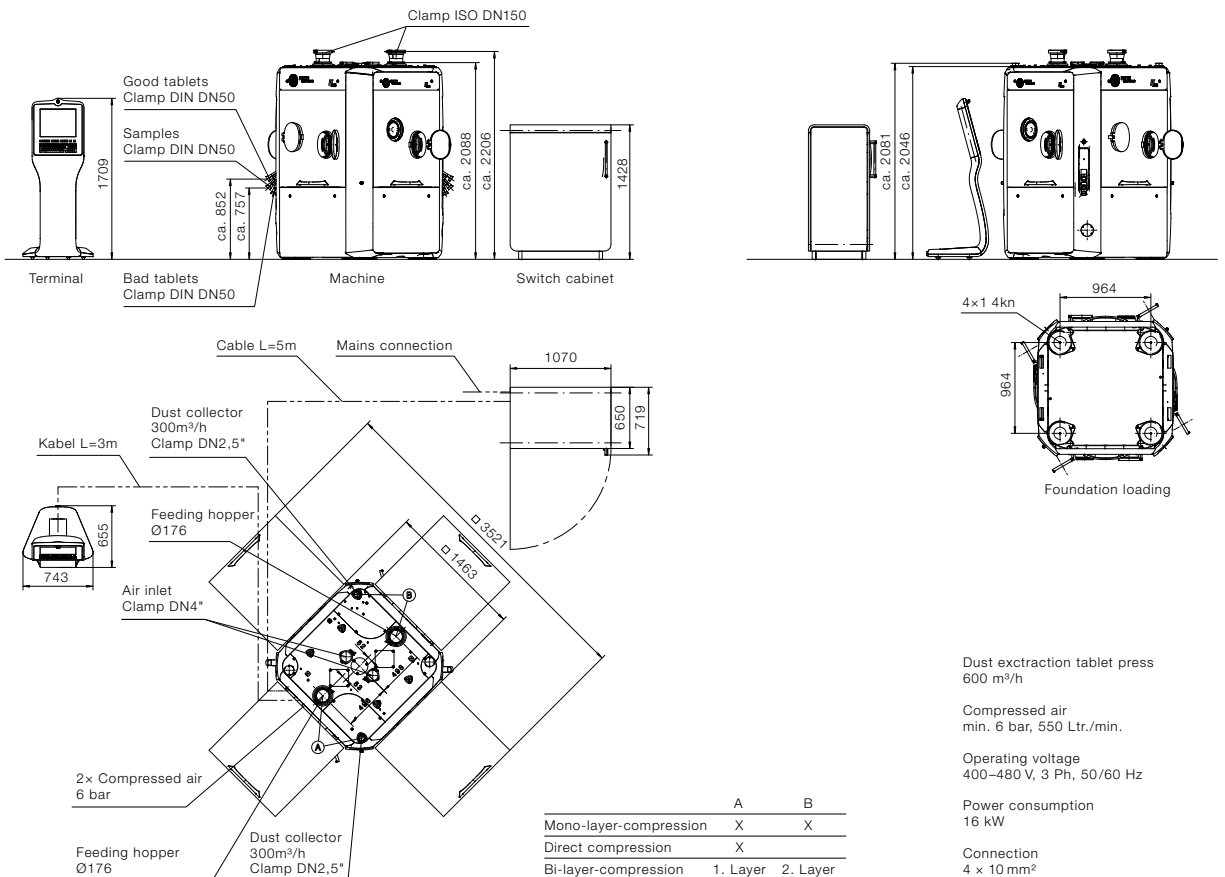


# Dimensions

## Standard floor plan



## Containment floor plan



<b>Segments (S)</b>		S	S	S
<b>Number of punch stations</b>		115	75	55
<b>Punch type</b>		FS12®	FS19®/EU19 FS®/EU19 TSM19	EU1"/EU1"-441 TSM1"
<b>Tablet output units/h</b>	min.	207,000	135,000	99,000
	max.	1,656,000	1,080,000	594,000
<b>Max. compression force 1*</b>	kN	33	100	100
<b>Max. compression force 2*</b>	kN	33	100	100
<b>Max. compression force 3*</b>	kN	33	100	100
<b>Max. compression force 4*</b>	kN	33	100	100
<b>Max. tablet diameter</b>	mm	11	18	25
<b>Max. filling depth 1st layer**</b>	mm	20	20	20
	2nd layer	mm	8	8
<b>Pitch circle diameter</b>	mm	710	710	710
<b>Turret rotation speed min.</b>	min <sup>-1</sup>	15	15	15
	max.	min <sup>-1</sup>	120	120
<b>Segment height</b>	mm	25	25	25
<b>Punch shaft diameter</b>	mm	12	19	25.35
<b>Punch length</b> Upper/lower punch	mm	133.6	133.6 (133.35)	133.6 (133.35)
<b>Upper punch insertion depth</b>	mm	1–4 (8***)	1–4 (8***)	1–4 (8***)
<b>Dimensions</b>	mm	1,463 × 1,463 × 2,046 without integrated switch cabinet 1,463 × 1,778 × 2,046 with integrated switch cabinet		
<b>Weight</b>		Tablet press 5,300–5,500 kg, operating terminal 100 kg, switch cabinet 350 kg		
<b>Electrical supply parameters</b>		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.

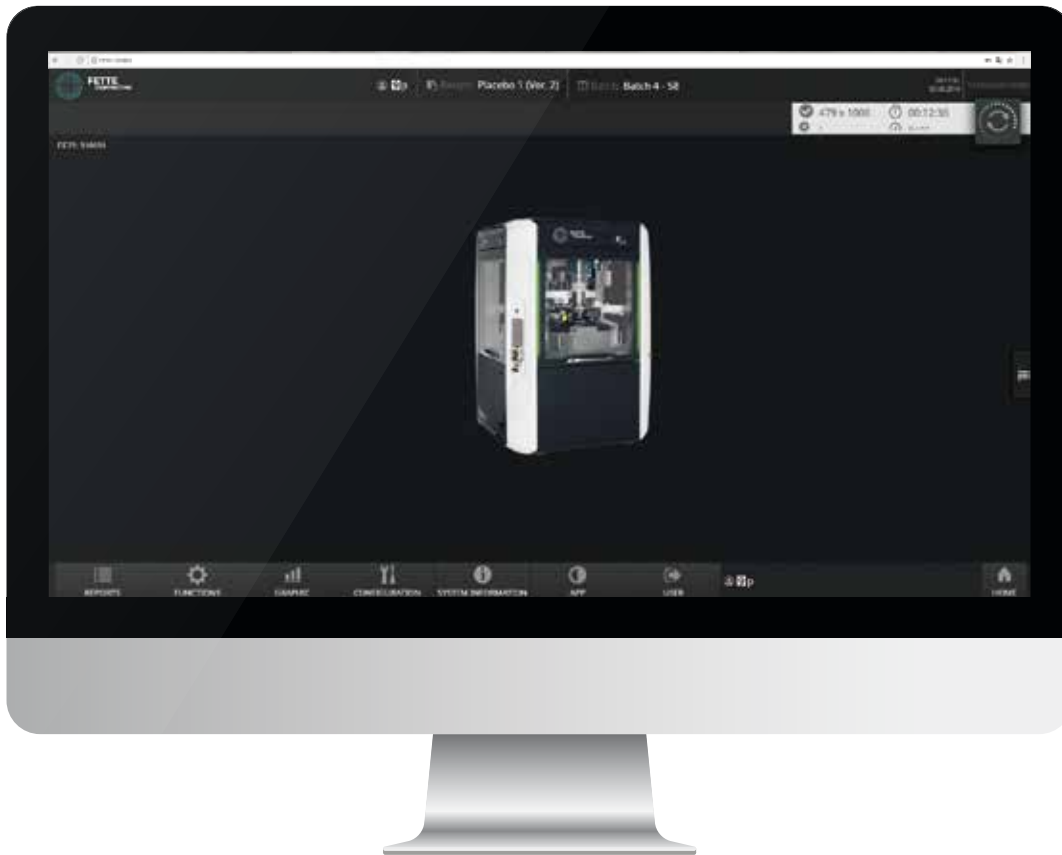
\* limited by punch properties

\*\* special filling depth available on request

\*\*\* 2-layer-operation

# 24/7 access to machine data and documentation

**SmartInterface**  
by Fette Compacting



## **Machine monitoring in real time**

The SmartInterface by Fette Compacting is a server-based application enabling the monitoring of tablet press production processes via mobile devices (laptop, 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,

enabling them to react immediately and deploy personnel more efficiently. This, in turn, permits analysis of inefficiencies and the possibility to take the appropriate measures. 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 intranet. Accordingly, only the user's own IT security guidelines apply.



### 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 a simple overview of the current production and machine status.

### Key benefits

- + Retrieve data at any time and from anywhere, even in editable formats such as Excel, without blocking the machine or impacting production
- + Easier machine handling
- + Process acceleration
- + Data update <1s (dependent on the customer network and capacity utilization)
- + Lower risk of contamination of the production area and machine by manual data exchanges on site, e.g. using a USB stick
- + 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 upgrade

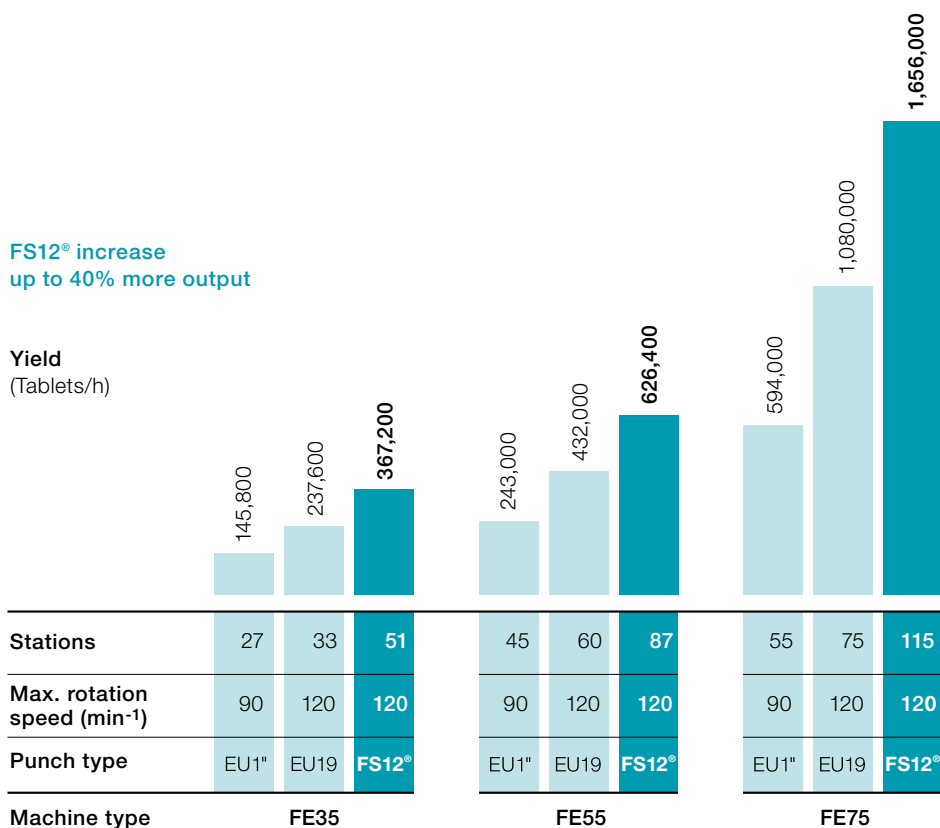
### Technical requirements

- + Compatible machine types with HMI software level Visual 7 or higher
- + 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 for specific connections.

# Pmax<sup>®</sup> turret – more production capacity without higher investments

FS12<sup>®</sup> increase  
up to 40% more output

Yield  
(Tablets/h)



Stations	27	33	51	45	60	87	55	75	115
Max. rotation speed (min <sup>-1</sup> )	90	120	120	90	120	120	90	120	120
Punch type	EU1"	EU19	FS12 <sup>®</sup>	EU1"	EU19	FS12 <sup>®</sup>	EU1"	EU19	FS12 <sup>®</sup>
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



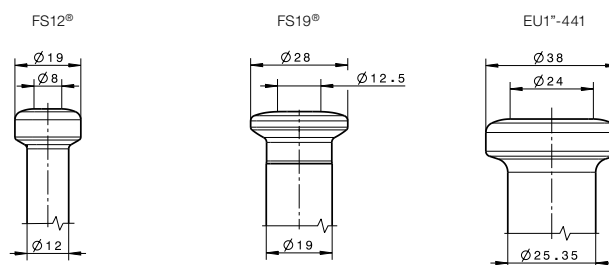


Whether round tablets, special shapes, relief moldings, concavities or break lines – Fette Compacting can handle the full range of customer requirements. To ensure maximum output and flexibility, we offer punches in all sizes and types. For customers with special demands on their production, we particularly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

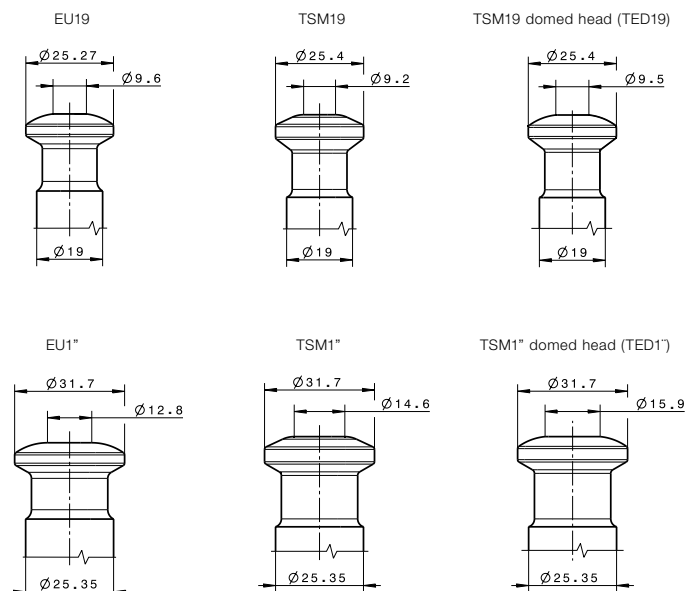
It is not just the diameter of the contact area that is critical; but furthermore the optimised transition geometries into the head radius which are featured by our FS<sup>®</sup> technology transmit the compression forces in an optimum way.

## Fette Compacting – Punch head types

### FS Technology<sup>®</sup>



### Standard



All measurements are in mm

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**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  
fch@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 22 62763399  
sales@fette-compacting.com

Competence Centre  
Plot No S 115, Phase III B  
Verna Industrial Estate  
Verna, Goa 403 722, India  
Phone +91 22 62763356

**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 et  
Uhlmann France**

1, Rue du Centre  
93160 Noisy Le Grand, France  
Phone +33 155 812121  
Fax +33 155 812120  
contact@fette-uhlmann.fr

**Fette Compacting Belgium BVBA**

Schaliënhoevdreef 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

[www.fette-compacting.com](http://www.fette-compacting.com)



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