efficiency

F20i

Flexible and dust-tight
next-generation tablet production

FETTE COMPACTING
be efficient

"Digital-Ready":
The next level
of efficiency

The i Series from Fette Compacting has stood for ultra-efficient and flexible tablet production for decades. The new i Series now offers even more options thanks to numerous innovations. Clean, system compatible and "digital-ready" – from the dust-tight equipment to the connection to the "Pharmaceutical production 4.0". The i Series is the next-generation of tablet production.

Technological platform
Together with its customers, Fette Compacting has developed the new i Generation as a technological platform on which the electronic and mechanical components of all tablet presses in this machine series are based. The special feature is that the relevant components for validation thus remain largely unchanged. The i Series thus retains all the features that make it so valuable to customers. In terms of the machine, this means that users will retain everything that makes their production successful today – with greater efficiency and even more possibilities. This promise is reflected in the claim Efficiency[i].

F20i: Maximum flexibility and efficiency
With an output of 475,000 tablets per hour and Pmax® technology, the F20i is the all-rounder of the new i generation. It is suitable for a wide range of products and batch sizes and thus enables maximum flexibility in production. Numerous innovations such as an innovative tablet discharge and an optimized turret change system simplify handling and make the F20i the most efficient tablet press in its performance class.

efficiency i

**The most important features
of the new i Series at a glance:**

Innovative

**Containment Guard –
dust-tight system design**

RFID operator login

**TRI.EASY Multi-flexible
dust-tight tablet chute**

Integrative

**Cross-generation
system compatibility**

Smart**Interface**
by Fette Compacting

New HMI software Visual 8

**Uniform interface for
process equipment**

Intuitive

**Fast and intuitive
cleaning**

**HMI software
with operating support**

**Assistance systems
for easy operation**

Intelligent

Smart**Interface**
by Fette Compacting

**location-independent
machine monitoring**

**Process and
production reliability
thanks to RFID**

**Recipe-specific,
reproducible
hardware settings**

Innovative

Clean production: from dust-tight to containment
Containment is becoming a core issue for production due to the increased use of new pharmaceuticals, including Active Pharmaceutical Ingredients (API). "Dust-tight" will become the minimum standard for pharmaceutical machines for the foreseeable future. The F20i already features consistent dust-tight design even in its most standard version. For all users who require containment, the Containment Guard-option provides a suitable solution.

Containment Guard* – dust-tight system design

Optimized cleaning
71 % fewer trim parts, resulting in 74 % fewer surfaces to be cleaned

Most efficient and fastest cleaning ever

Maximum operator protection thanks to minimal Exposure to active ingredients

Dust-tight connections between machine and process equipment for low cleaning effort

Savings in costs due to significantly shorter cleaning cycles

Easy cleaning for faster operational readiness of the machine

TRI.EASY – High-performance, multi-format tablet chute with dust-tight design
Wide range of applications from mini-tabs to effervescent tablets

External control cabinet with energy monitoring system IP54 certified
Possibility of remote machine shutdown

* The containment package is required for active substances

RFID operator login

Operator login by using RFID technology
Easy access for faster processes and machine operation

Time saving due to automatic operator login

Maximum security in the management of the operators
Login for operating and service technicians for various tasks

Various operating authorizations can be defined
21 CFR Part 11 compliant

TRI.EASY Multi-flexible dust-tight tablet chute

Compact housing
Efficient cleaning of components

Safe and extremely fast sorting of bad tablets and sample tablets
Optimal, fast switching processes without tablets being jammed or destroyed

Poka Yoke principle and geometrical similarity of components
Fail-safe, easy and fast assembly and dismantling

LED status display of track positions
Operating mode is apparent at all times

Track drive system with e-drives and end-position damping
Reliable switching processes with end-position confirmation

Integrative
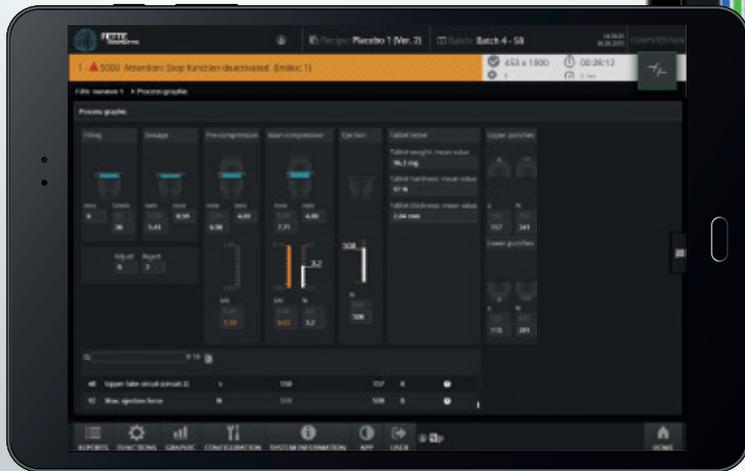
System-compatible set-up to IoT and MES

For several years, the i Series has been distinguished by its cross-generation system compatibility. The same applies to the F20i. Practically all products with contact to the system assemblies remain unchanged despite its innovative design. Thanks to the possibility of system integration, the new tablet press can be perfectly integrated in existing production environments. The F20i also features technical connectivity for state-of-the-art production environments, up to "Pharmaceutical production 4.0".

Smart**Interface**
by Fette Compacting

Machine real-time monitoring
24/7 access to data, documentation and machine real-time monitoring by mobile devices (tablet, smartphone, PC etc.)

Digital value-added function for easier handling and process acceleration

Key performance indicator (KPI) dashboard

Individual and simultaneous monitoring of various parameters

Identical look and feel of the SmartInterface and user interface (Human-Machine Interface, HMI)

Display of changed process parameters compared to standard settings

Easy storage of non-executable documents (e.g. SOPs in PDFs, JPGs etc.) on the machine via mobile device

Instructions / messages can be sent to the machine-HMI

Automatic detection of process equipment certified by Fette Compacting

Cross-generation system compatibility

A smart interface for the unified process equipment via Ethernet connection
Automation in one hand and control of all process devices

Easy monitoring and steering of process equipment

Standard interface for the process equipment
Fast and easy machine set-up for production

UL/CSA-conformant design available as an option
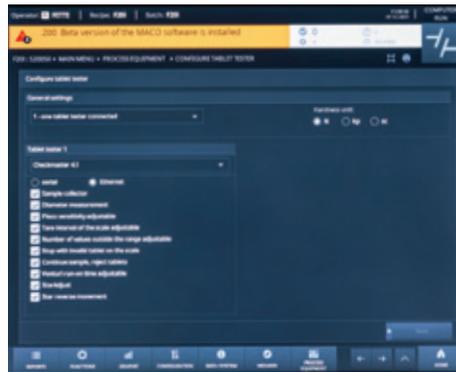
Integrative

Innovative turret changeover

The F20i is equipped with an innovative turret changeover system. The turret can be removed for product changes in just a few minutes – much faster than with conventional machines. After the operator has moved the compression stations into the parking position, he can change the turret with the aid of a mechanism integrated into the machine. The innovative turret changeover principle, together with Fette Compacting's TRI.EASY design, ensures minimal handling effort and uniquely simple operation.

Cross-generational compatibility

The F20i is characterized by its cross-generation system compatibility. Die and segment turrets can easily be taken over from the tablet presses of the earlier i Series (2200i and 2090i).

Integrative

Press room with cleaning friendly design
Dust-tight machine concept

Frameless window flaps with detachable double lip seals

Optimal access from all four sides

Maximum conformity with GMP guidelines

Easy-to-clean drawer elements

Smooth surfaces

Strict separation of drive elements and measuring points

Process stability through cross-generation standardization
All Fette Compacting tablet presses feature identical dwell times and compression rollers

Mechanical or automatic penetration depth adjustments for optimal utilization of press zones

Pressure relief – Software function for temporary reduction of pressure force at the beginning of the pressing process

Pressure force control – Force-based weight control for optimized yields

System and process compatibility of the new i generation
The tablet presses in the new i generation are consistently
designed in accordance with the principle of process and system
compatibility. For this reason, all process-related assemblies
are the same as in the former i Series. This system-compatible
design significantly minimizes the efforts associated with machine
validation and qualification.

New product scraper
Mechanical or pneumatic product scraper
to increase the yield

Safety-optimized control cabinet
Flexible separation of gray and white areas

State-of-the-art IT for data processing
in real time

Electric components sealed off
from ambient air

Direct access to all assemblies

Maximum interference resistance and EMC

Strict separation of power unit and
control unit

Unique cooling concept thanks to two
separate circuits

Temperature reduction by standby mode

Optional UL/CSA-conformant design

IP54 certified

Intuitive
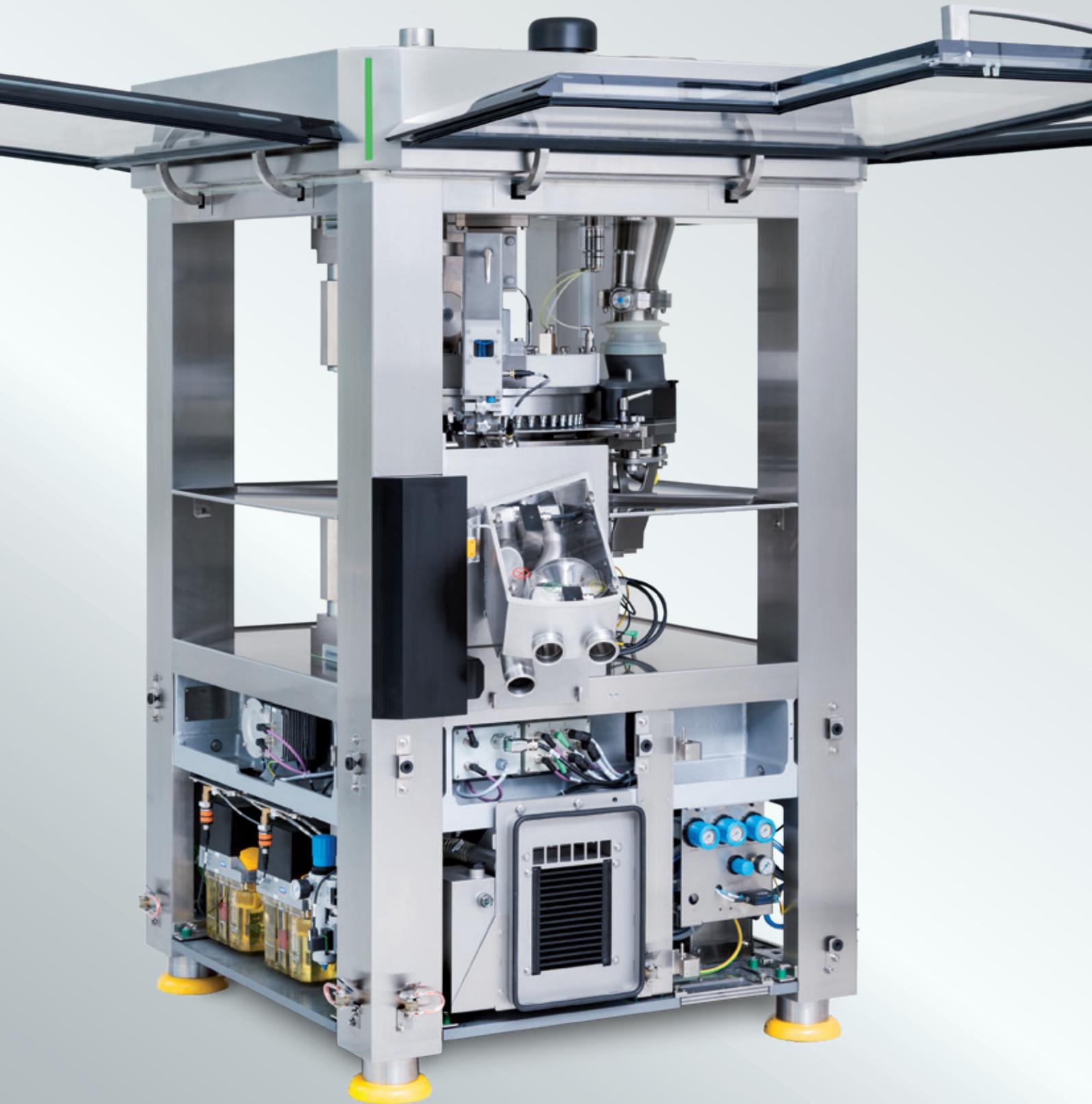
Easy handling with tactile HMI and wizard

An ultra-modern human machine interface (HMI) supports the user in the form of intuitive control, monitoring and documentation of the machine and process-equipment via a terminal with tactile feedback. At the software level, an assistant for workflows (workflow operation wizard) provides support in the safe and error-free implementation of standard operating procedures (SOPs). Intuitive handling of the F20i also includes extremely simplified cleaning processes.

Fast and intuitive cleaning

Optimized design of the components
Intelligent cable management significantly reduces cleaning efforts, and simplifies handling

HMI software with operating support

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 operability

Ultra-vision screen display
For maximum contrast even in poor lighting conditions

Microsoft Windows embedded operating system
Future-tight operating system

SQL server database
Real-time intelligence

Assistance systems for easy operation

Fette Compacting visual 8 software with wizard functions
Easy and fast operation of the tablet press even for inexperienced operators

Self-explanatory assistance systems for example Checkmaster

Assistance systems
Recipe assistant for fast creation of new recipes

Control loop assistant

SOP Designer

HMI operation
Intuitive operation thanks to self-explanatory pictograms and symbols

Operating errors are practically eliminated
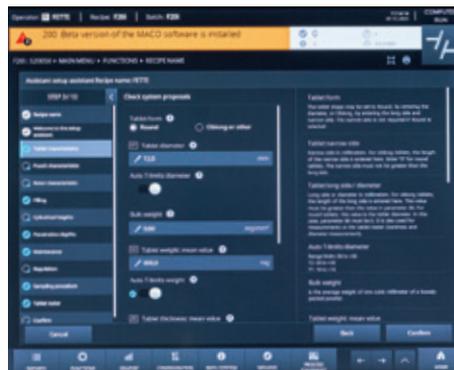
Intelligent

Optimized processes with SmartInterface and RFID
The path to intelligent production in the future is paved in particular by the new SmartInterface offered by Fette Compacting. This key component is a server-based, real-time monitoring app enabling the user to supervise his production via mobile end devices. Users can download batch logs at any time and are always on top of the production parameters. In order to further improve process reliability and avoid set-up errors, the F20i also features an RFID option.

Process and production safety through RFID

TRI.EASY RFID filling cam query
Automatic detection of filling cams which match the product

Increase of efficiency and user-friendliness as well as simplification of the operation by fast and fail-safe adjustment of the machine

TRI.EASY RFID-monitored air sorting with air curtains
Reproducible and correct settings for all products

Coding element monitoring and display in the event of incorrect installation of mechanical parts

Extensive time savings thanks to Poka Yoke principle

Cost savings through fast and easy efficient set-up of the machine

Process stability

TRI.EASY turret
Self-identification of the most important turret parameters

Fast, safe rotor change
Optional automatic clamping system for particularly fast rotor change

Wide-opening window flaps for access from all four sides

Menu-guided operation via terminal

Avoidance of damage due to incorrect operation

High level of safety due to acknowledgement functions

Recipe-specific and reproducible hardware settings

All pneumatic settings can be made with scales from a central operator panel
Process reliability and fail-safe handling

Faster set-up and reduced set-up times

Scale values can be saved in the recipe

Fill-O-Matic height adjustment with scale rings
Easier handling of components

Optimized settings independent of operator

Error avoidance through fail-safe adjustment

Reduced product loss and improved yields thanks to optimal and consistently reproducible settings

Increased machine availability through saved settings in the recipe

Compression stations
Large rollers for pre- and main compression station with up to 100 kN compression force

Upper punch penetration depth adjustment by means of eccentric
(optionally also completely motorised)

Innovative rotor exchange principle for fast product changes

The F20i Containment is the perfect machine for middle batches and active substances

Maximum operator protection is the essential feature of the containment system offered by Fette Compacting. Maximum operator safety during tableting can only be achieved by appropriate technological solutions and largely automated manufacturing of tablets. A tablet press must compress powder and granulate safely and efficiently.

The tableting process is fully automated in the machines of the new i Series. Containment is continuous – from filling the machine to the removal of tablets. In the event of a machine stop, glove ports in the window flaps allow manual access from all sides without any interruption to containment.

The Fette Compacting containment system has been optimized with maximum operating and system safety in mind. All glove ports and window flaps are integrated in the safety control system where they are also monitored. An RTP (Rapid Transfer Port) permits the input and output of material, tools, and punches. The possibility of maloperation is practically excluded.

Cleaning-optimized press room
Reduced dust exposure thanks to optimized press room design

No dust outside the machine

All parameters can be set from the HMI

Tablet chute and press room have a dust-tight design

New window flaps
Manual and fail-safe locking of window flaps

Maximum safety provided by operator-level monitoring

Access to containment controls for authorized users only

Logging of all operator entries and log changes

Sensor for monitoring the underpressure

Display of the switchable extraction plant

Switchable between extraction system in the machine and extraction hose

Acoustic and visual safety information in the event of a leak

Rapid Transfer Port (RTP) for entering and exiting materials into and out of the containment system

Glove ports
Safety sensor in each glove port

Ergonomic design

Possibility of changing punches and / or filling cams under containment conditions

No dust released during manufacturing or preparation for cleaning or interaction under containment conditions possible without interrupting containment
No special protective suits necessary during production

Savings in time and money

No contact with active products
Operators protected from impurities and contamination

Dust-tight press room within the machine
Safe manufacturing environment

**Fail-safe machine operation and control**
Maximum operator safety during the entire production process, reduced costs during operation

Technical Data

| Die (D) / Segments (S)		D	D	D	D
Number of punch stations		47	43	36	30
Punch type		FS19® EU19 FS® EU19 BBS	FS19® EU19 FS® EU19 TSM19 BB	FS19® EU19 FS® EU19 TSM19 B	EU1" EU1"-441 TSM1" D
Tablet output units/hour	min.	42,300	38,700	32,400	27,000
	max.	338,400	309,600	259,200	180,000
Max. compression force 1*	kN	100	100	100	100
Max. compression force 2*	kN	100	100	100	100
Max. tablet diameter	mm	11	13	18	25
Max. filling depth	mm	18	18	18	22
Pitch circle diameter	mm	410	410	410	410
Turret rotation speed min.	min⁻¹	15	15	15	15
max.	min⁻¹	120	120	120	100
Die diameter	mm	22	24	30,16	38,1
Die-/segment height	mm	22.225	22.225	22.225	23.8
Punch shaft diameter	mm	19	19	19	25.35
Punch length Upper/lower punch	mm	133.6	133.6 (133.35)	133.6 (133.35)	133.6 (133.35)
Upper punch insertion depth	mm	1–4	1–4	1–4	1–4
Dimensions L × W × H	mm	1,220 × 1,220 × 2,022			
Weight		Tablet press 3,300–3,500 kg, operating terminal 90 kg, switch cabinet 270 kg			
Electrical supply parameters		Operating voltage 400–480 V, frequency 50/60 Hz, power consumption 13,2 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

S	S	S	S
66	45	36	33
FS12®	FS19® EU19 FS® EU19 TSM19	EU1" TSM1"	EU1"-441
59,400	40,500	32,400	29,700
475,200	324,000	216,000	198,000
34	100	100	100
34	100	100	100
11	18	25	25
20	20	20	20
410	410	410	410
15	15	15	15
120	120	100	100
–	–	–	–
25	25	25	25
12	19	25.35	25.35
133.6	133.6 (133.35)	133.6 (133.35)	133.6
1 – 4	1 – 4	1 – 4	1 – 4

Standard floor plan
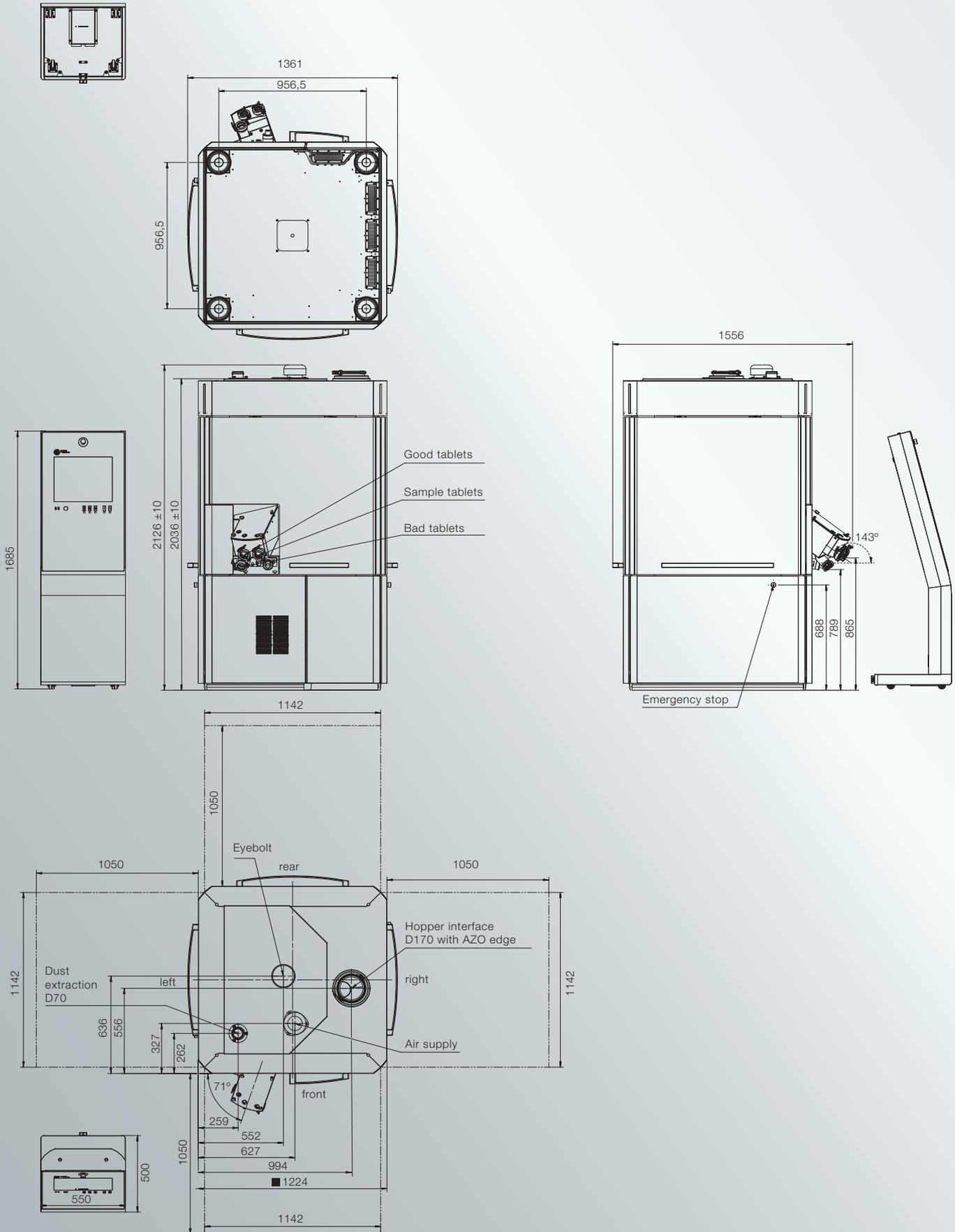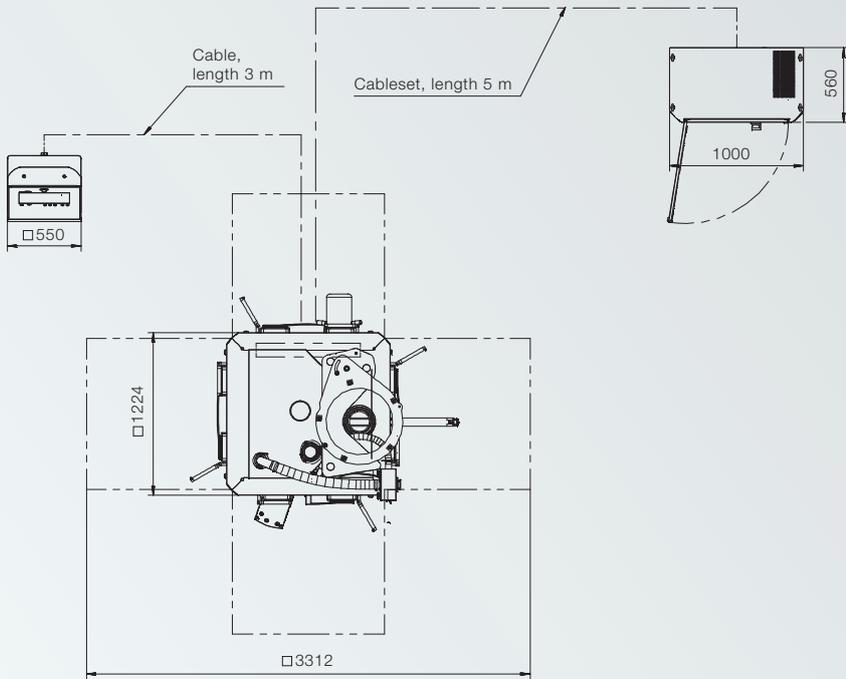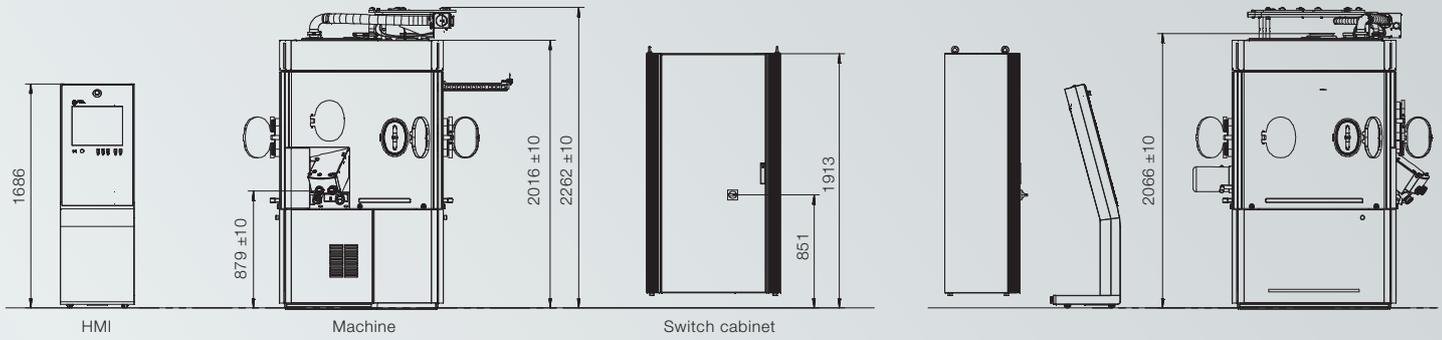
1361

956,5

956,5

1556

2126 ±10
2036 ±10

1685

Good tablets

Sample tablets

Bad tablets

143°

688
789
865

Emergency stop

1142

1050

Eyebolt

rear

1050

1050

Hopper interface
D170 with AZO edge

Dust
extraction
D70

left

right

1142

1142

636
556

327
262

Air supply

71°

front

259

552

627

994

1050

■1224

500

550

1142

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1686

879 ±10

2016 ±10

2262 ±10

1913

851

2066 ±10

HMI

Machine

Switch cabinet

Cable,
length 3 m

Cableset, length 5 m

560

1000

□550

□1224

□3312

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