FETTE COMPACTING

2090*i* tablet press

Single rotary press

Maximum availability

Secure operation

LMT

Leitz Metalworking Technology Group

Profile: Tablet Press 2090*i* (Single rotary press)

The innovations:

- *i* Semi-automatic turret exchange
- *i* Operator friendly clamping system
- *i* Significantly reduced noise
- *i* Operator terminal with 15" touch-screen
- *i* Simplified, more reliable user interface
- *i* Optional stainless-steel Fill-O-Matic

Your benefits:

- Rapid format and product changeover resulting in high annual yields
- Reliable insertion of the exchangeable turret
- Minimized pollution of the workplace and production environment
- Easy to handle and operate
- Around the clock, lights-out production
- Conforms to GMP, GAMP and FDA

Innovation is the driving force for development and progress. It can lead to a solution that often exceeds the core problem and can advance the entire industry.

The new 2090*i* tablet press incorporates genuine innovations and improvements that have been received with enthusiasm by the tablet manufacturing industry: a semi-automatic removal arm, a new turret clamping system, a stainless-steel Fill-O-Matic (including plastic gearbox housing), 15" touch-screen, integrated videos for user support and much, much more.

Innovation for increased productivity.
Semi-automatic turret exchange.
2090*i*.

And, FETTE is also proud to offer several options that will allow you to meet the conformity requirements for the FDA's 21 CFR, Part 11.

At FETTE, we continue to set the pace for tablet press technology. Once again, our innovations are lighting the way to the future. FETTE's 2090*i*.

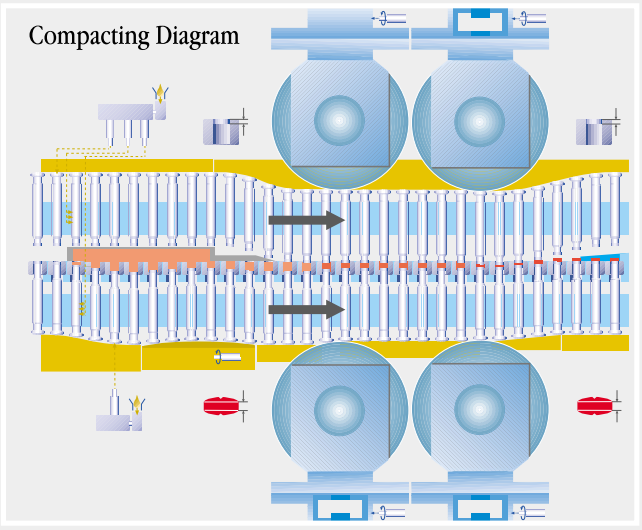
Availability, Productivity – 2090*i*

Performance data

- Up to 324,000 tablets per hour
- 24 hour lights-out production
- Simple and flexible connections to production lines
- Maximum format flexibility
- Turrets with five different punch station configurations, depending on punch type

Your benefits:

- Consistency of all tablet parameters
- Highest quality features
- *i* Automatic adjustment procedure for the main encoder
- *i* Optional diagnostic message by SMS or e-mail to operator allows for remote monitoring



Fully modular system

- 2090*i* tablet press with patented exchangeable turret, including punches and cams
- Electrical cabinet with VME bus computer
- *i* Operating and analysis unit with 15" touch-screen
- Peripheral devices:
  - GRATEX (de-dusting and deburring)
  - CHECKMASTER 4.1 (in-process control of tablet weight and hardness)
  - WEIGHTMASTER (in-process control of weight)
  - METALCHECK (checking for metallic impurities)
  - Vertical de-duster
  - LOADING CENTER (for tablets)

Increased availability

- *i* Faster turret exchange through semi-automatic removal arm
- Reduced cleaning time through improved accessibility
- Reduction of down-time through the use of an extra turret, complete with cams and tools
- Increased annual yield through the use of the optimum turret for the tablet diameter

Flexibility, Periphery – 2090*i*

Semi-automatic mechanical removal arm

- *i* Purely mechanical, no hydraulics in the compression compartment
- *i* The removal arm is incorporated in a column, and returns to its place after turret changeover (optional, depends on the model)

Faster, more reliable turret changeover

- Rapid turret changeover facilitated by:
  - new, patented clamping system
  - automatic centering on the thrust bearing
- Large window flaps allow access from all four sides
- Turret changeover does not require compression stations to be removed
- *i* Menu-driven operation through the terminal, security ensured through acknowledgement function, avoiding incorrect operation and consequent damage

Tablets in many sizes

- Easy conversion to new formats
- Fast, simple access
- Secure mechanical fitting

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Turret with patented properties

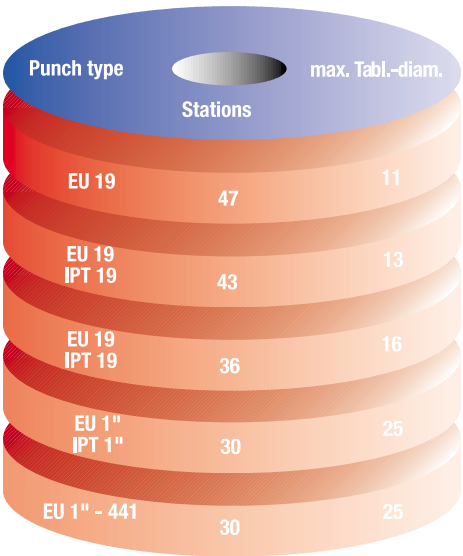
- Our patented turret is removed complete, including all cams and punches
- Minimal adjustment time needed to change production requirements
- Upper cams available in bronze or plastic
- Cams are accessible and easy to change
- Lower punch secured against falling out with patented punch brake
- *i* Hard-chrome plated or stainless steel turrets are available as options
  - – increased resistance to abrasion
  - – increased resistance to chemicals
  - – reduced roughness, smoother surfaces
  - – improved and faster cleaning (washable)
- Patented punch-saving system to avoid punch damage
- Compatibility with retrofitted turrets from former models

Integrated video sequences

- Turret changeover video and other video sequences integrated into operator's terminal
- Powerful visual support for inexperienced operators
- Easy learning and reinforcement of the changeover process.

Versatile formats

- Turrets with 30 to 47 punch stations
- Wide range of formats



Operation – 2090*i*

Easy machine operation

- New and improved touch-screen
- Screen-driven operation
- *i* New operator software clearly structured for intuitive learning
- *i* Operator-friendly, ergonomic construction
- Structured diagnostic messages for rectifying malfunctions (expert system)

- Product-specific parameters can be displayed in addition to the lists
- Help texts provide descriptions of parameters and diagnostic messages
- All production-relevant data is readily available
- Simplyfied set-up by calling up pre-set batch data
- Different levels of operator access possible for security
- Optional password management through use of the Windows NT® user administration
- Optional SMS & e-mail diagnosis report

Powerful operating terminal

- *i* 15" touch-screen
- Easier operation of symbols and buttons
- Powerful Pentium industry PC
- CD ROM drive
- Windows NT® operating system
- Uninterruptible power supply prevents data lost
- Color printer
- Individual height adjustment, storeable for all operators
- Optional wireless terminal for remote operation

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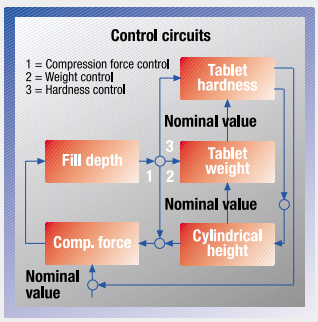
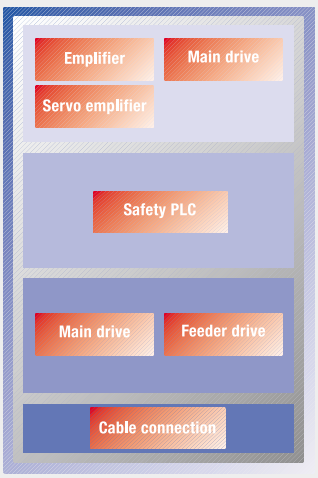
Control – 2090*i*





Safety-oriented electrical cabinet

- *i* Flexible separation of gray and white zone
- *i* Modern computer system, real-time
- *i* Total encapsulation of electronic components from surrounding air
- *i* Integrated modem for remote service
- All systems are easily accessible
- Status display via LEDs
- Calibration unit allows control circuit adjustments at any time
- Easy exchange of computer or control components
- Maximum fault reliability and EMS tolerance
- All cables can be plugged in on both sides
- Power and control circuitry is clearly divided
- *i* Unique cooling design using two separate circulation systems
- Temperature reduction through standby operation

Reliable control

- Decentralized computer logic
- Direct control of all motor driven adjustments of the machine
- Acquisition of data from all measurement points
- High-speed data transfer to the evaluation unit and operator interface via Ethernet TCP/IP
- Clearly structured control loops
- Extremely stable regulation
- Incorporation of process-specific data into the control process
- Redundant, highly-sensitive measuring points
- Precise single ejection via compression force at high speeds of operation
- Redundant compression force measurement
- Ejection force monitoring
- Punch tightness measurement
- Patented punch control
- Punch related sampling
- Vacuum control

Detailed documentation

- Electronic change record documents any and all operator entries, adjustments or changes
- Process data documentation (production record/result record)
- Operating status documentation (diagnostic record)
- Complete overview with automatic analysis
- Batch record

Construction – 2090*i*

Sealed compression area

- Paint-free, easily accessible compression compartment
- *i* Fill-O-Matic with proven three-chamber system
  - easily dismantled
  - easy to clean
  - exchangeable filling, dosing and distribution wheels
  - product loss is minimized
  - available in stainless-steel as an option for washability
- Double-glazed, frameless window flaps
- Accessible from all four sides
- Conforms with highest GMP standards
- Easy to clean shrouding
- Smooth surfaces
- Strict separation of drive and compression areas
- Removable double-lip seals on the window flaps
- Filling hopper easily removed by twisting and lowering

Improved soundproofing

- *i* Shrouding panels with sandwich structure
- *i* Strengthened window flaps, modified flap seals
- *i* Use of vibration-absorbing casting

Dust-free head section

- Plug-in dust extraction
- Efficient dust extraction with vacuum regulation
- *i* optional window display for large-format indication on the window flaps

Modular mechanical construction

- Pre and main compression stations of the same size can be exchanged for one another
- A high level of component exchangeability with other FETTE presses
- Minimization of spare parts stocks
- Reduction of spare parts costs
- Greatest accuracy, even under following stresses:
  - static
  - dynamic
  - thermal
- Optimized stability (Finite Element Analysis calculation)
- Maximum operating security
- Maximum working safety
- Extended maintenance intervals
- Modular design with separation into four sections:
  - head section
  - compression area
  - middle area
  - drive area

Middle section

- Precision mounting of the turret
- Turret and turret shaft frictionally engaged and form-fitting
- All compression stations of the same construction
- Maintenance-free servo motors for all adjustments
- Compression stations can be easily moved out
- By use of big compression rolls pre-compression and main compression force up to 100 kN possible

Drive area

- *i* Main drive via straight bevel gear pair, improved efficiency, reduced heat generation
- Suspended base plate with vibration insulation
- Main drive is held in place by torque
- Turret shaft is stabilzed by precisely tapered roller bearings

Technical Data – 2090*i*

Number of stations		47	43	36	30	30
Punch type		EU 19 BBS	EU 19 (IPT/TSM 19) BB	EU 19 (IPT/TSM 19) B	EU1“ (IPT/TSM 1“) D	EU 1“-441
Tablet output/h	min. max.	42,300 324,300	38,700 296,700	32,400 248,400	27,000 180,000	27,000 180,000
Max. compression force	kN	100*	100	100	100	100
Max. pre-compr. force	kN	100*	100	100	100	100
Max. tablet diameter	mm	11	13	16	25	25
Max. filling depth	mm	18	18	18	18	18
Max. tablet thickness	mm	8.5	8.5	8.5	8.5	8.5
Pitch circle diameter	mm	410	410	410	410	410
Turret rotation speed	min^{-1}	15-115	15-115	15-115	15-100	15-100
Die diameter	mm	22	24	30.16	38.1	38.1
Die height	mm	22.22	22.22	22.22	23.8	23.8
Punch shaft diameter	mm	19	19	19	25,35	25,35
Punch length	mm	133.6	133.6 (133.35)	133.6 (133.35)	133.6 (133.35)	133.6
Upper punch pen. depth	mm	1-4	1-4	1-4	1-4	1-4
Weights		Tablet press approx. 3500 kg · Operator terminal 100 kg · Electrical cabinet 350 kg				
Power supply data		Operating voltage 220-500 V, 50/60 Hz · Total fusing 35 A/6 · Power consumption 13 kW				

*Tools only permit up to 70 kN.
If tools are large and filling depths are high the machine cannot be run at the highest capacity.
Because of the technical progress we reserve the right of alteration.

Space Requirements – 2090*i*