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 **SR SCHINDLER**

HERMETIC PRESSES FOR SINGLE AND DOUBLE LAYER SLABS



INCREASE YOUR PROFIT
WITH OUR HERMETIC PRESSES

INNOVATIVE. RELIABLE. EFFICIENT.

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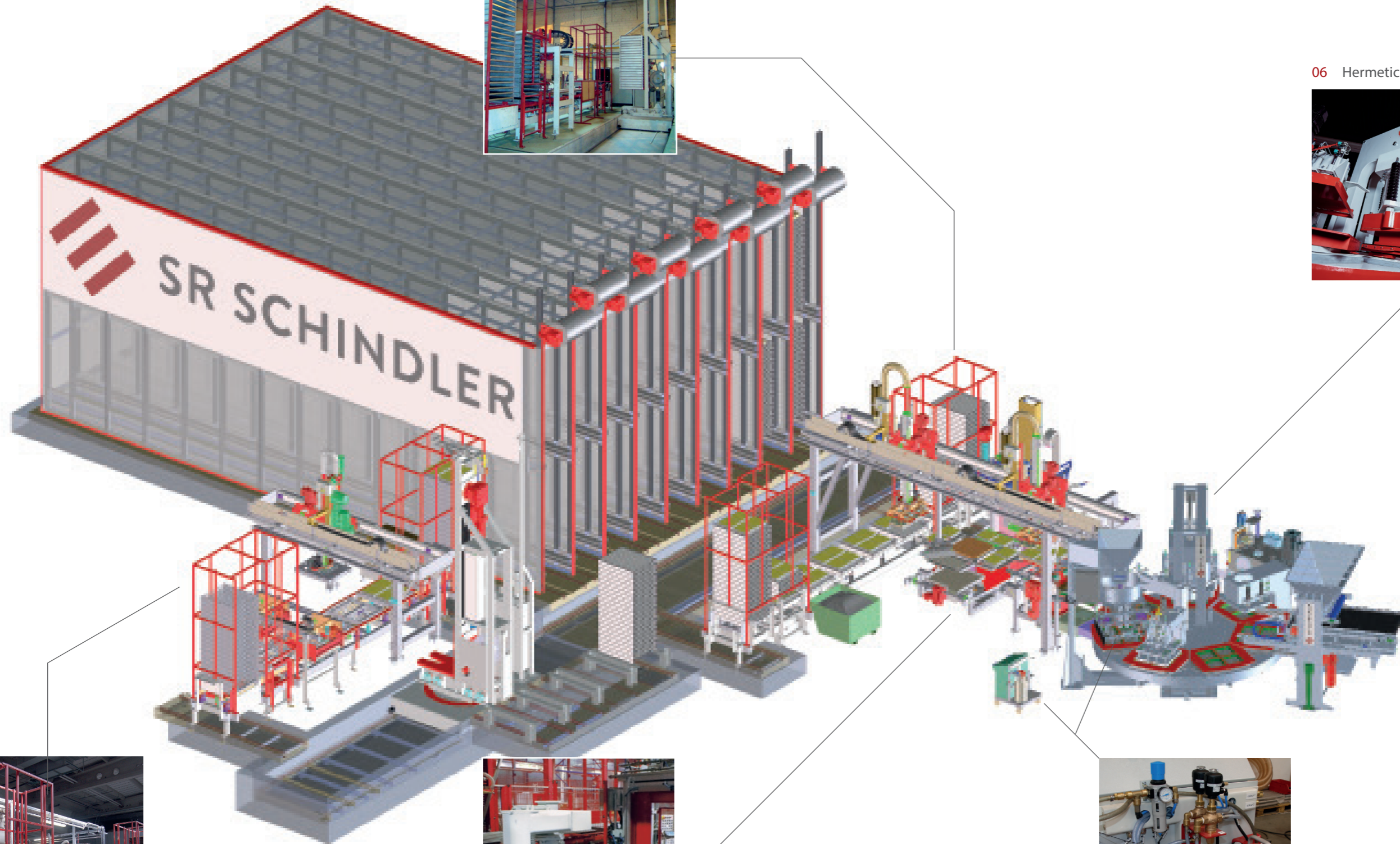
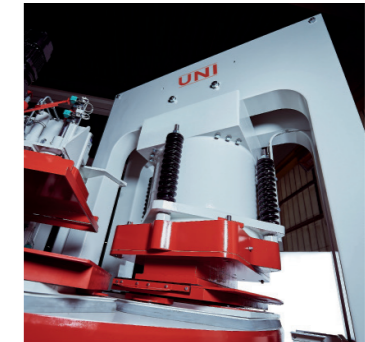
HERMETIC PRESS

WITH FLAT DEPOSITING DEVICES

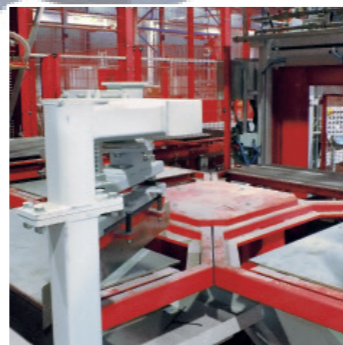
26 Flat depositing device-wet side



06 Hermetic press



26 Flat depositing device-dry side



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HERMETIC PRESS

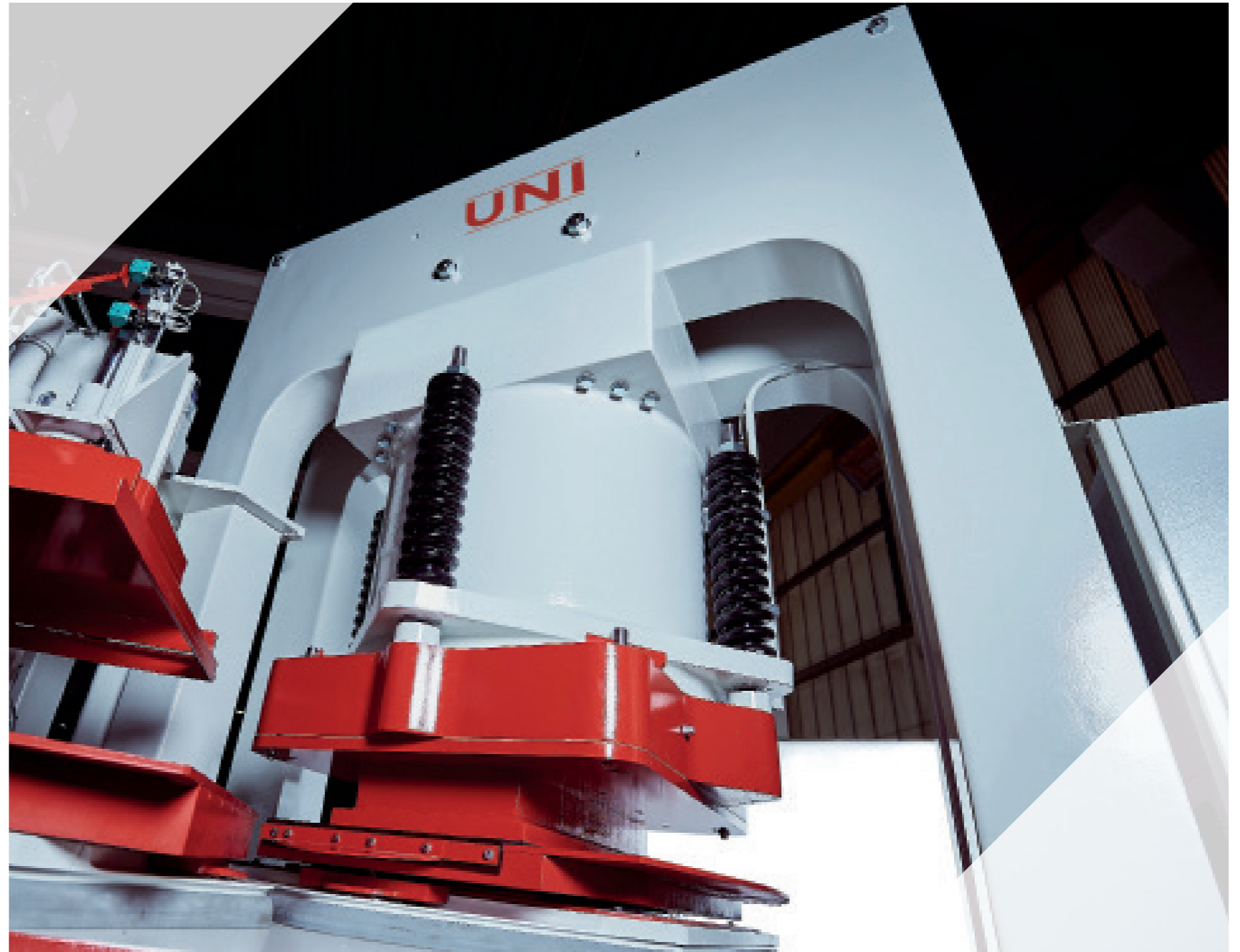
UNI hermetic presses for production of double layer square and rectangular slabs of high quality and density. These slabs are used as terrace or paving slabs, and the large-format slabs for public squares and buildings (central stations, airports, shopping malls, etc.).

Optionally, production lines can be expanded with filter press technology for manufacture of thin single layer slabs for indoor application and wall panelling.

Due to the surface density, hermetic slabs are suitable for high-quality design of floor and wall surfaces indoors and outdoors. A broad product portfolio can be generated by different facemix materials and surface treatments.

Design features

- 7 station concept with prepressing and main pressing station
- Massive portal design for optimum absorption of press forces
- Servo-controlled hydraulic pump for the pressing power
- Rotary table mounted on slewing ring with internal gearing, located safely inside the machine, including automatic lubrication
- Servo-controlled turntable drive
- Compressed air supply of the 7 stations via air docking system for the safe function of the mould lifting cylinders
- All parts made of high quality rolled steel
- All 7 stations equipped with frequency-controlled vibrators
- Latest-generation control and visualization (Siemens Simatic S7-1500)
- All electrical control devices mounted in a water- and dust-proof control panel
- Functional safety concept



Technical specifications *

Average cycle time depending on product format and press type: approx. 12–22 sec.

* depending on product characteristics and required final result for double layer slabs



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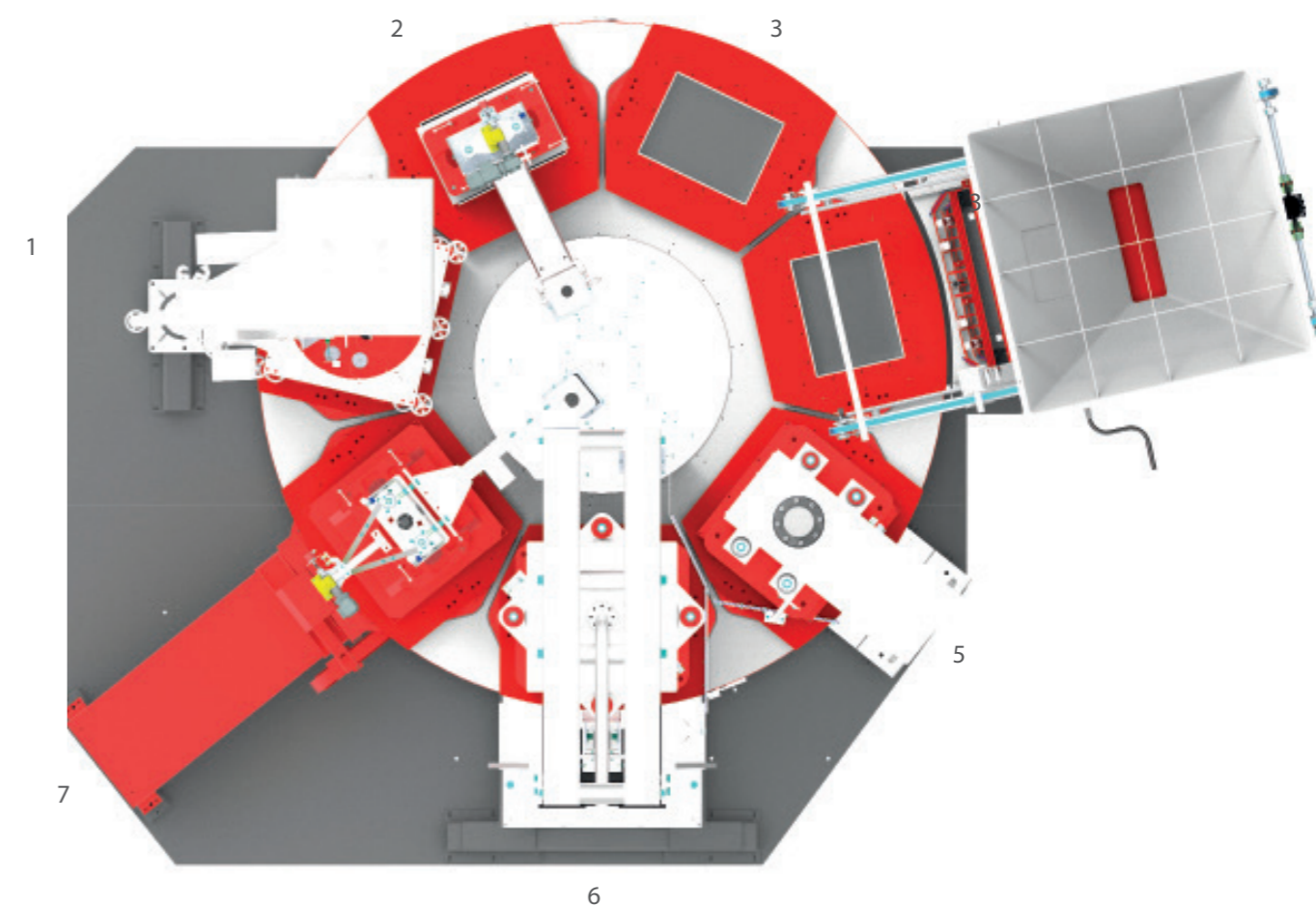


VERDANO®



Advantages of UNI hermetic presses

- Optimal access for maintenance, mould exchange and operation due to 7 station concept
- 7 stations also for 1,400 t press
- Improved accessibility through portal design
- Optimized cycle times via servo-controlled turntable drive
- Protection of the drive unit against contamination by capsuled turntable execution and good access to the drive unit via the press table
- Early detection of ultra-sleeve wear between press and anvil via electronic air gap monitoring, allowing scheduled service intervals and reducing unplanned downtimes
- Cleaning or maintenance works largely independently of the operation of the press by quick exchange system (plug-in) for 2 dosers
- Optimal filling of the mould and return of excess material in the process by backmix feeder (Patented for Germany)
- Process optimization due to selection of different facemix distribution systems
- Increased energy efficiency due to highly dynamic servo hydraulics
- Ease of preventive maintenance without stopping the press by free access to the central pneumatic valve cabinet on the main press frame
- High plant availability due to visualized user interface and fault analysis
- Products can be manufactured with any surface structure, with chamfers and spacers and blind slabs as well



- 1 Facemix filling station
- 2 Facemix distribution station
- 3 Service station (also mould exchange)
- 4 Backmix filling station
- 5 Prepressing station
- 6 Main pressing station
- 7 Ejection station

FACEMIX FILLING STATION

Volumetric facemix dosing and filling of mould.

2 different dosing systems available.

Tube doser

Equipped with:

- Mixer in material container. Container partially lined with Hardox wear plates
- 8 dosing tubes equipped with 2 pneumatic clamping devices
- Quick-release closures for changing the dosing tubes
- Filling level sensor for automatic demand for refilling of facemix

Good emptying and accurate filling of the doser via intermediate silo. Conveying the facemix by means of mixer blades into the outlet. Simultaneously, prevention of build-up and segregation of the material.

Via outlet spouts, the material is filled into the dosing tubes with clamping jaws. Adjustment of the facemix volume by manually adjusting the distance between the clamps. Good emptying and accurate mould filling by means of tube vibration.

After dosing and completion of turntable positioning, the lower clamping jaw is opened to fill the mould.

Disc doser

Equipped with:

- Planetary mixer and material container with hydraulically operated and pneumatically supported ejector, synchronized with the press. With double rotary mixing arms for optimum dosing disc filling
- 3 dosing discs (upper and lower dosing discs rigid and middle dosing disc movable)
- Middle and lower discs equipped with Hardox wearing plates
- Two pneumatic cylinders move the middle and lower discs apart and together and ensure safe locking at all times. Easy cleaning and easy conversion of the facemix quantity through quick replacement of the dosing bushes

The desired facemix quantity is filled in the dosing bush via congruently aligned openings in the upper and middle dosing discs.

The turntable is turned and the mould is placed under the doser. The middle disc is turned so that the openings of the middle and lower discs are congruently aligned. The mould is filled.

The middle disc is turned back for a new filling process.

New and innovative turning and lifting devices for swinging the doser away from the press for cleaning when changing colors and/or recipes.



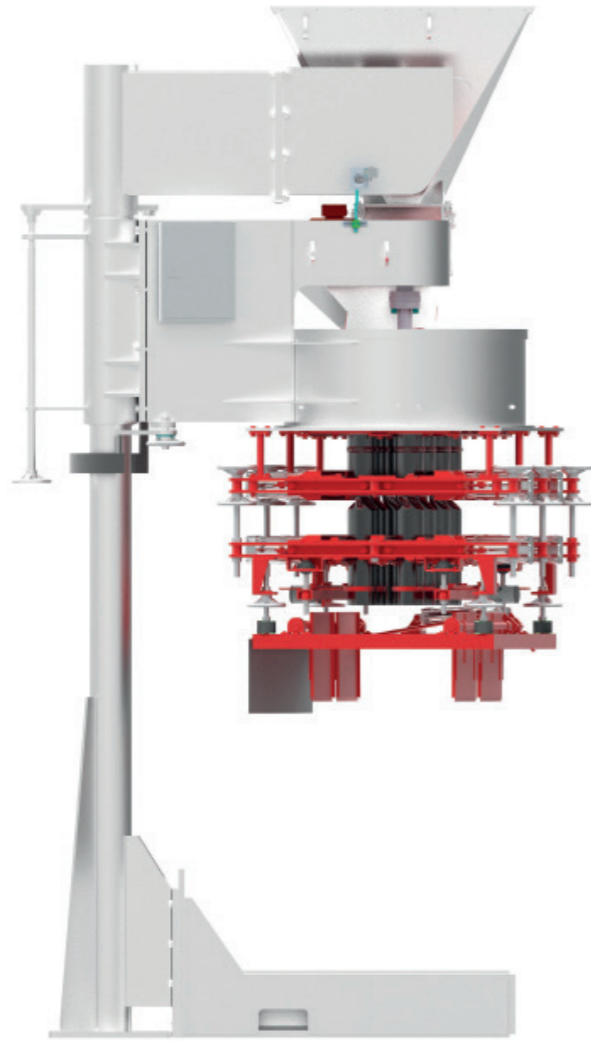
Optional

Doser-quick exchange system

New development for quick exchange of doser during production.

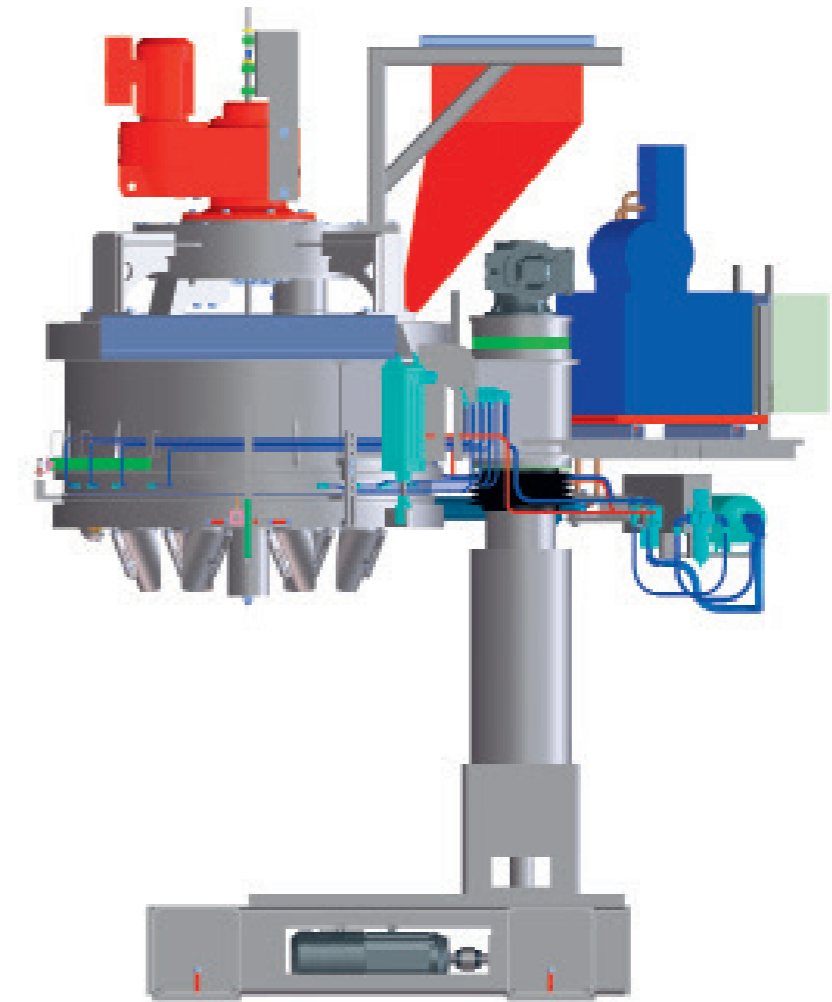
- Required cleaning of the doser separately from the press e.g. at color and/or recipe change
- Transport and safe exchange by means of a forklift through integrated receiving pockets
- Easier exchange by means of mechanical quick-release devices for the frame as well as quick-release systems for pneumatics, hydraulics and electrics
- Cleaning of the doser away from the press at an easily accessible working height

COMPARISON OF DOSER TYPES



8-fold tube doser

Mixer motor: 1.5 kW
 Air consumption: 350 l/min. on 8 bar
 Material container capacity: 240 l



16-hole disc doser (10- and 12-hole dosers also available):

Mixer motor: 7.5 kW
 Air consumption: 600 l/min. on 8 bar
 Material container capacity: 400 l

	Tube doser	Disc doser
Dosing accuracy / reproducibility	+	++
Cleaning	++	+
Adjustment at format exchange (filling volume)	++	++
Flexibility with different mould frames	+	++
Use of coloring machine	++	++
Use of marbling machine	+	++
Wear	+	+
Cycle times	++	++

STATION 2

FACEMIX DISTRIBUTION STATION

For optimum distribution of different facemix recipes, the following systems are available.

- Plastic stamps with different millings (adapted to concrete)
- Gratings
- Vulcanized facemix distribution plates

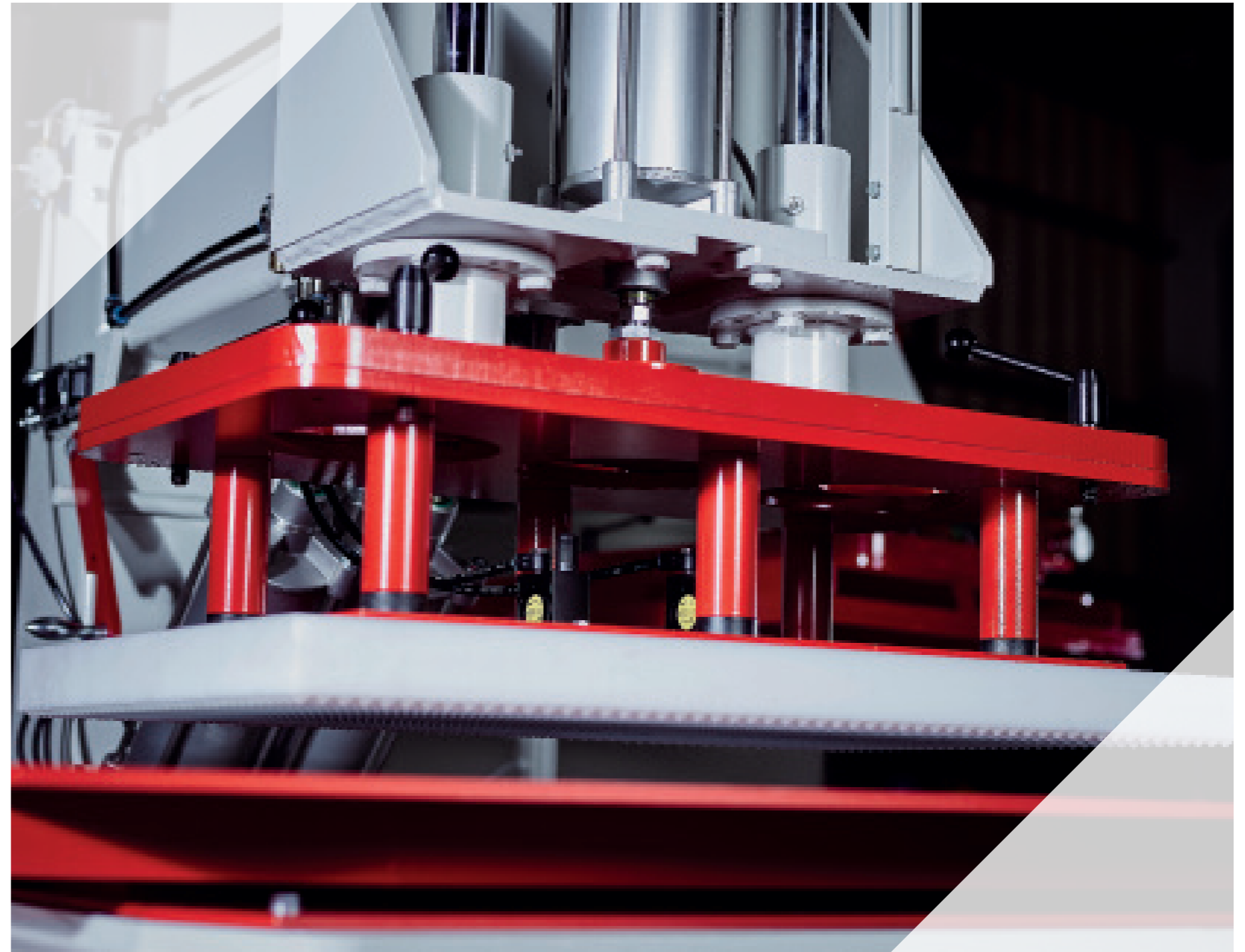
Advantages

- Precise distribution of the facemix
- Support for material de-aeration
- Prevention of pore formation

Optional

Immersion depth adjustment

Electronic adjustment of the immersion depth of the facemix distributor during operation for quick adaptation to different material conditions.



	Plastic stamp	Grating	Vulcanized
Distribution of the facemix	++	++	+
Cleaning	++	+	+
Homogeneous surface	++	++	+
Non-stick properties	++	++	++

STATION 3

SERVICE STATION

For mould exchange, cleaning and control of mould frames. Here as well as at station 1 and 2, vibration in stop-and-go mode is possible.

Advantages

- Easy and quick mould exchange
- If required, this station can be used as 2nd facemix distribution station
- Monitoring of facemix distribution during ongoing production

BACKMIX FILLING STATION

Filling the mould with the earth-moist backmix.

Backmix feeder for complete filling of the mould up to the upper edge, and targeted overfilling in certain parts of the mould. Electronic overfilling ensures a precise and even slab thickness. Displacement of the facemix is avoided.

Equipped with:

- Mobile group consisting of material silo, conveyor belt and filling pocket
- Mobile group with adjustable forward and reverse speed
- Material silo with level sensor for communication with the mixing plant
- Frequency-controlled conveyor belt, for take-out of the material from the material silo and for loading the filling pocket

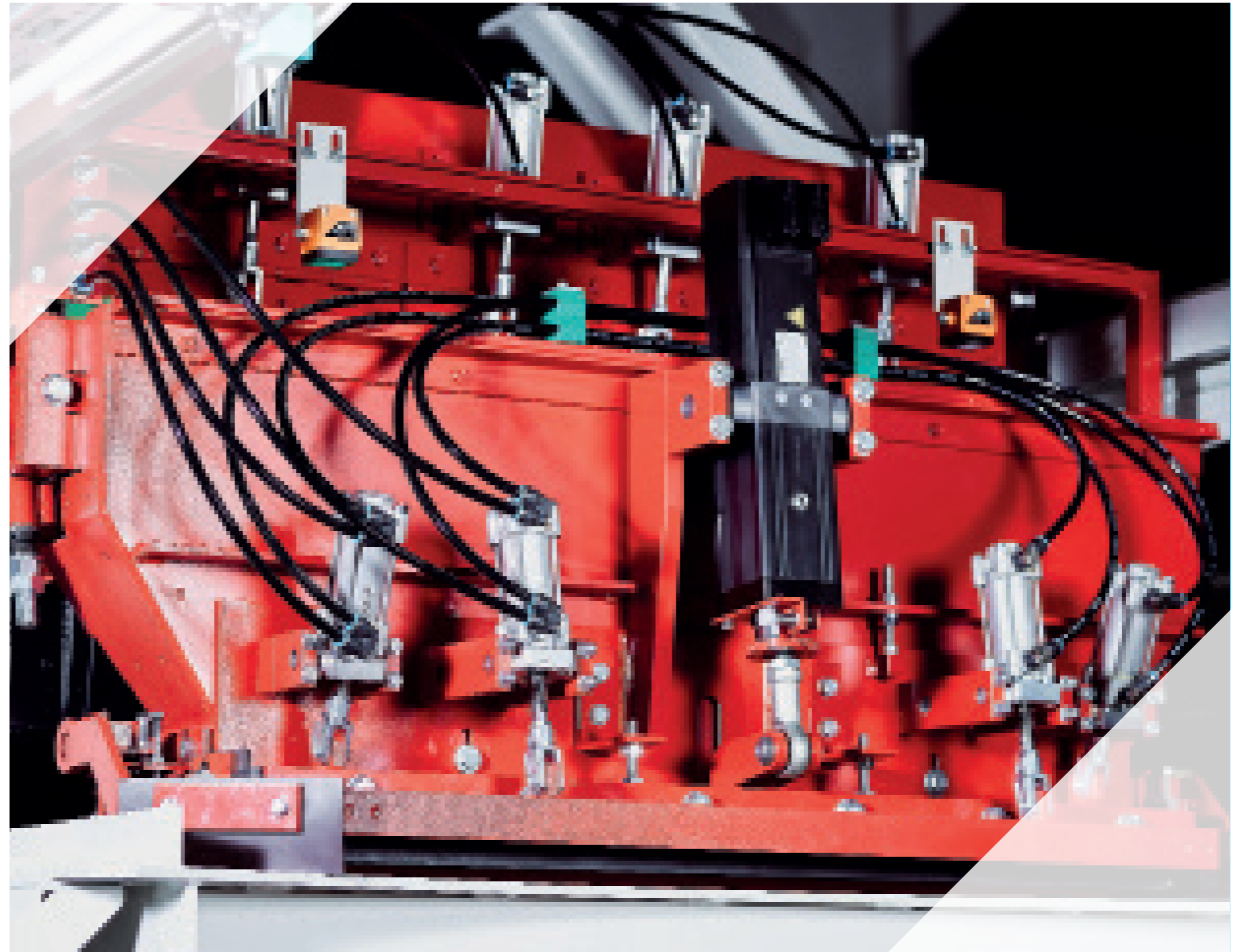
During forward movement, the mould is filled with backmix; during the backward movement, it is overfilled by means of electronic overfilling and the surplus material is removed by scrapers.

The X-Y-axis regulation allows for adjustment of a speed-independent and freely programmable overfilling curve.

The complete unit can be moved for easy cleaning.

Advantages

- Easy operation
- High dosing accuracy
- Reproducibility of overfilling
- Less facemix compaction and displacement
- Lower manufacturing tolerances, improved coplanarity of the products
- Quick recipe-related adaption to a wide range of moulds
- Simplified machine cleaning



PREPRESSING AND MAIN PRESSING STATION

Prepressing station

Start of the compaction process and the water exchange between facemix and backmix.

Reduction of the required main pressing time.

Main pressing station

For final compaction of the product.

- Stepless adjustment of the required pressure and the pressing curve up to 1,400 tons depending on the format and thickness of the product and the materials used
- Automatic shutdown of the pressing force when the required force is reached

Full water exchange between facemix and backmix and the optimum water-cement ratio is achieved at the end of the pressing process.

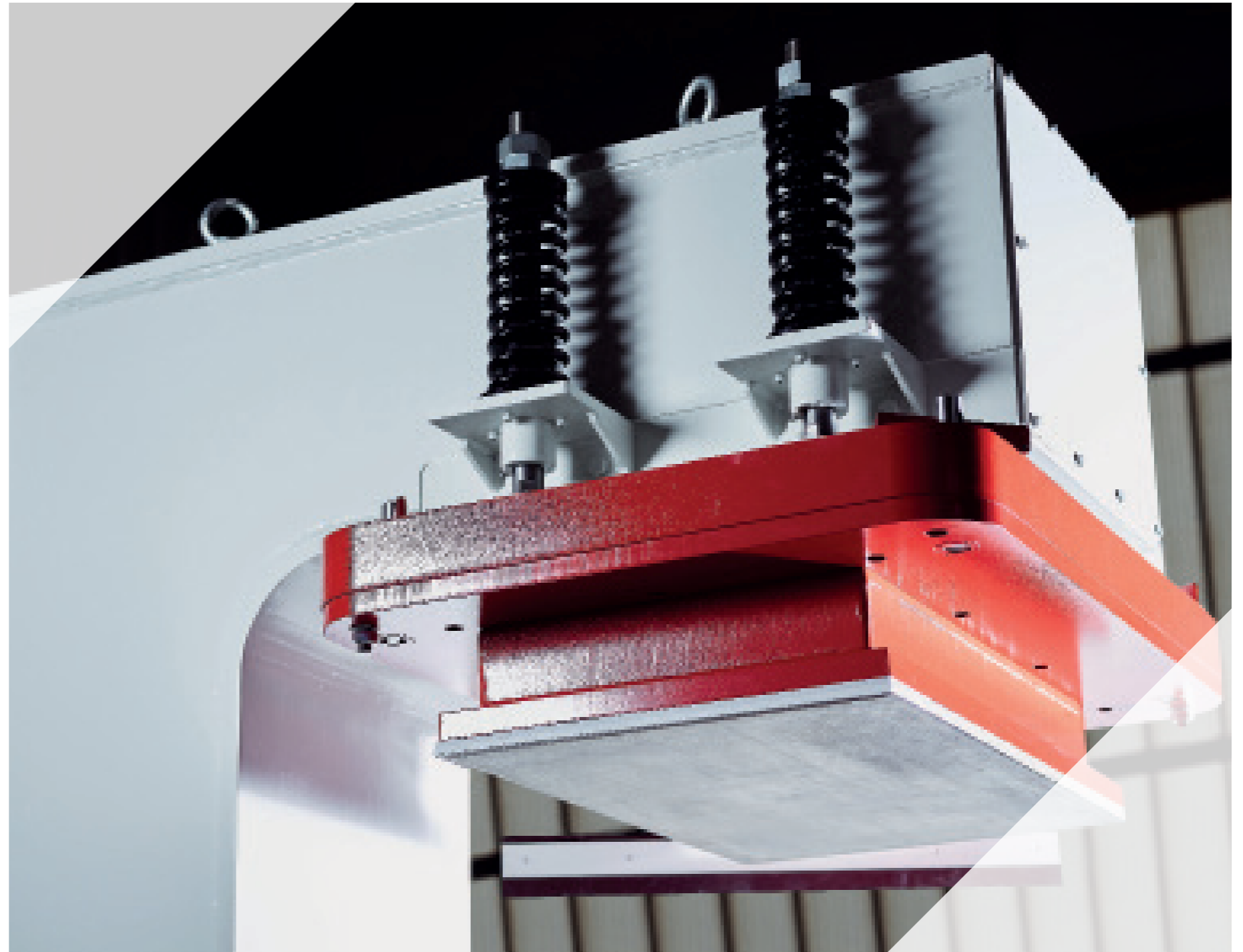
Compaction speed and time is steplessly adjustable by means of volume flow controlled hydraulic unit.

Press stamp plates in vulcanized or all-steel execution available.

Optional

Faulty pressing prevention systems

Faulty pressing detection via position measuring system. Depending on the inclination of the material, interruption of the pressing process.



EJECTION STATION

For ejection of green slabs from the press onto the slab depositing carriage.

2 ejection systems available.

Mechanical ejection system

- Mould lifts
- Slab carriage moves below the mould
- Ejector pushes the slab out of the mould onto the carriage

System with electronic height adjustment during operation for compensation of differences in slab thickness.

Optional
Vacuum-supported ejection system

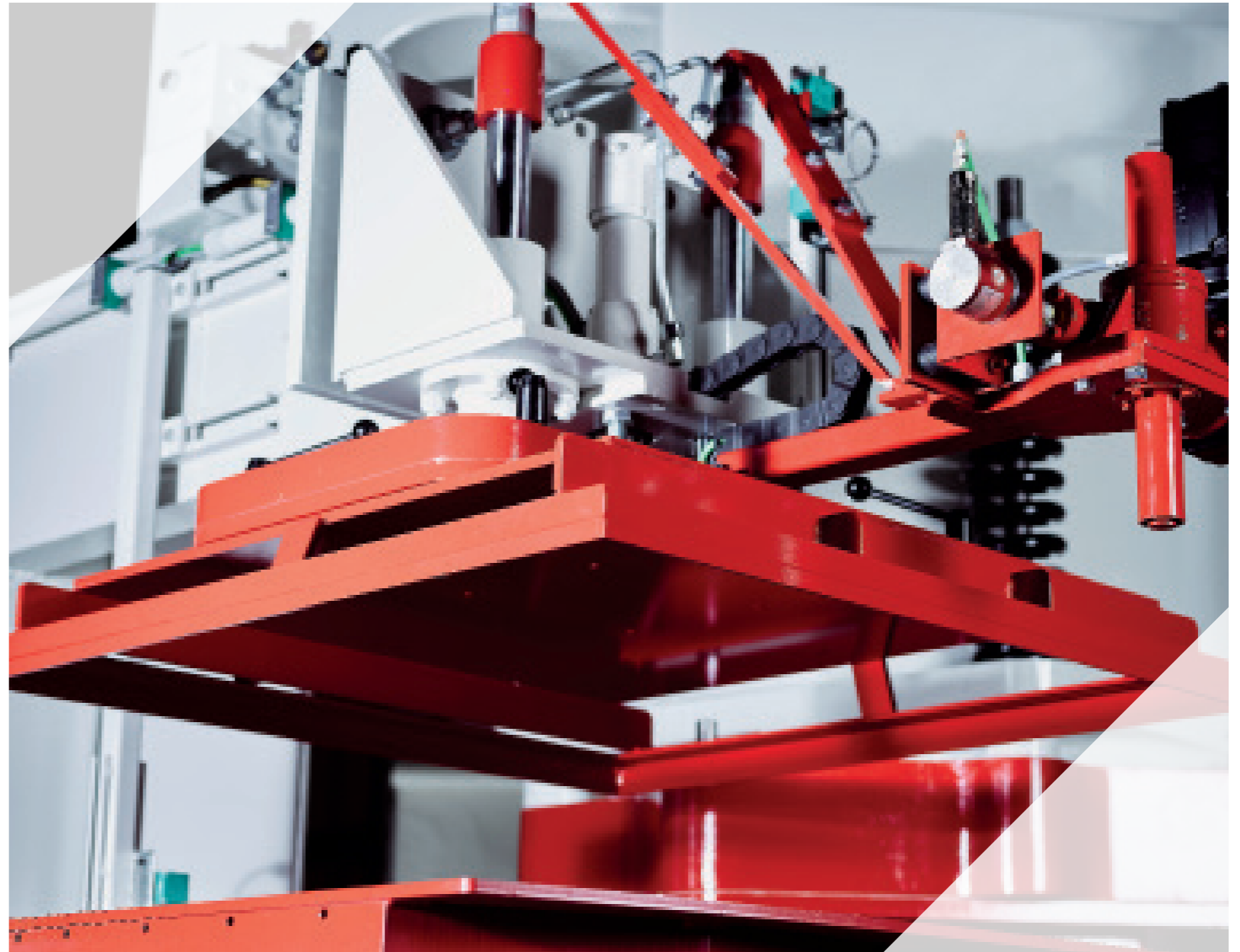
Depending on format and slab thickness, a vacuum-supported ejection system is necessary.

- Ejector lowers towards the slab
- Mould moves upwards
- Vacuum is switched on
- Slab is lifted by ejector so that carriage can move below the product
- Slab is deposited by ejector on the carriage

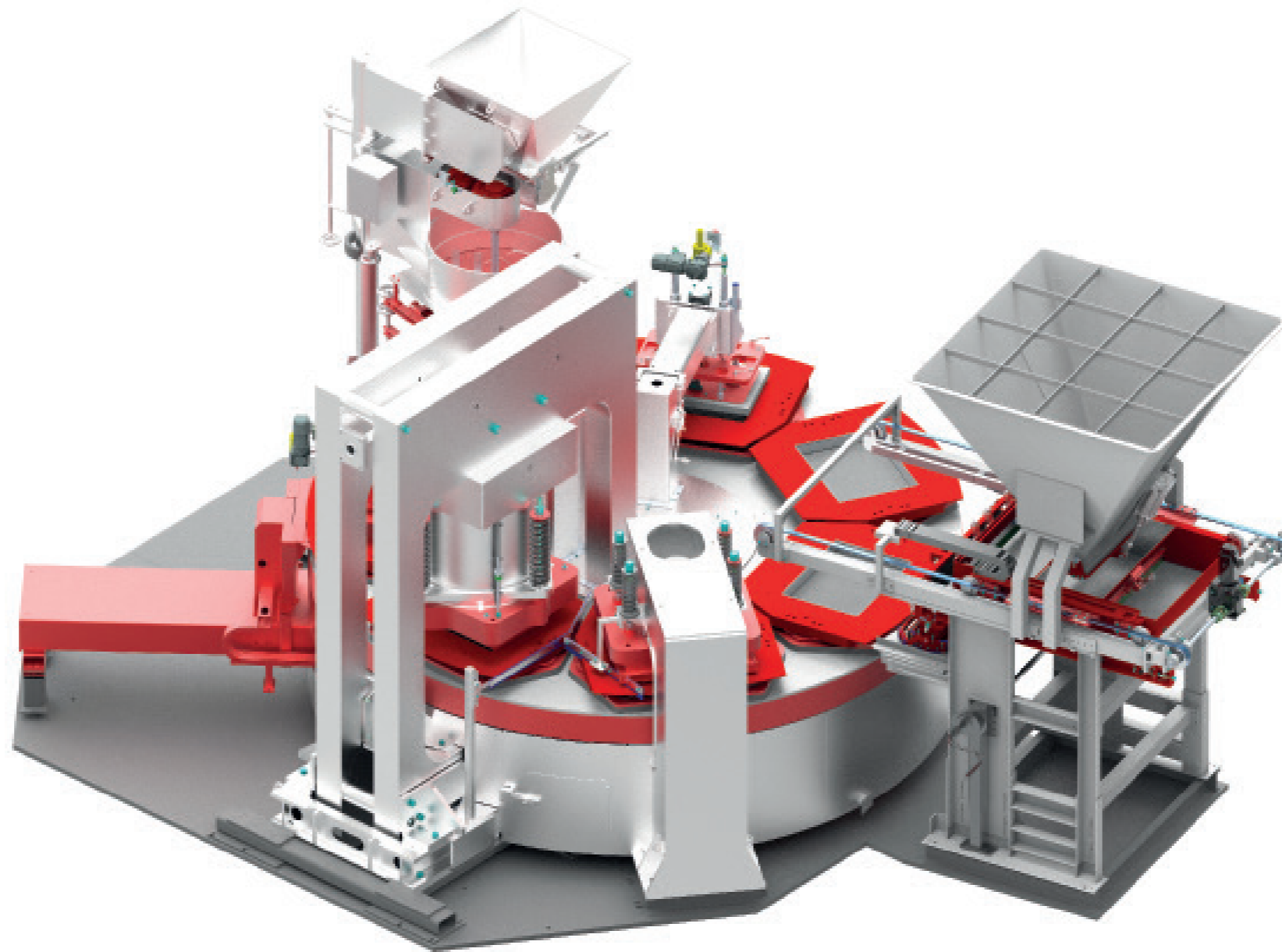
Slab depositing carriage

It is used to remove the green products from the press and for transfer to green slab turning device or direct pickup by means of slab transfer device of flat depositing device-wet side.

- Fully automated
- Fully capsulated



VERSIONS



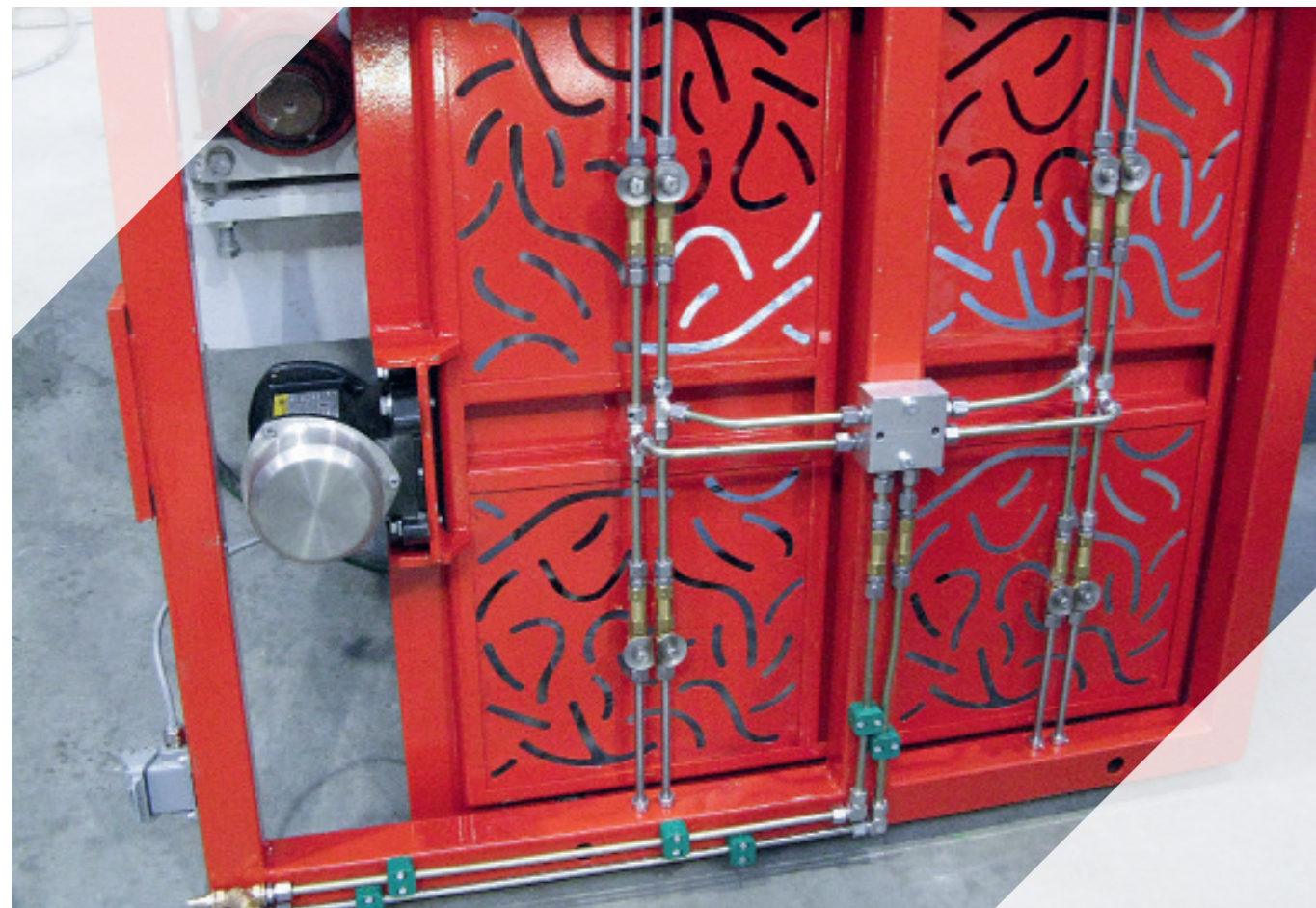
UNI Hermetikpress	600/7	1200 /7	1200/6	1200 plus/6
Number of stations	7	7	6	6
Max. slab formats 1-fold	600 x 600 mm	1,000 x 1,000 mm for occupancy with 3 moulds 800 x 800 mm 900 x 600 mm 1,000 x 500 mm	1,000 x 1,000 mm	1,200 x 800 mm 1,000 x 1,000 mm
Max. slab formats 2-fold	600 x 400 mm	500 x 500 mm	500 x 500 mm	600 x 600 mm
Max. slab formats 4-fold	300 x 300 mm	400 x 400 mm	450 x 450 mm	450 x 450 mm
Turntable diameter	3,900 mm	4,700 mm	4,700 mm	4,700 mm
Distance mold frame lifting cylinder	1,090 mm	1,275 mm	1,275 mm	1,475 mm
Min. slab thickness	Depending on slab size, up to format 400 x 400 mind. 35 mm, for bigger formats individual accoring material properties			
Max. slab thickness	80 mm	100 mm	100 mm	100 mm
Max. pressure of main press-station	600 t	1,200 t	1,200 t	1,200 t
Piston diameter of main press station	540 mm	770 mm	770 mm	770 mm
Weight of the machine incl. 1 set of moulds	approx. 30,000 kg	approx. 65,000 kg	approx. 65,000 kg	approx. 65,000 kg
Power consumption	68 kW	95 kW	95 kW	95 kW
Cycle time range	13 -14 s	15 - 20 s	16 - 25 s	16 - 25 s
Length x width x height	4,8 x 4,0 x 3,2 m	6,0 x 5,0 x 4,0 m	6,0 x 5,0 x 4,0 m	6,0 x 5,0 x 4,0 m

MARBLING AND COLORING MACHINE

- Independently mobile equipment for marbling and/or coloring the slabs
- Can be mounted on hermetic turntable presses
- With 1 or 2 color containers for liquid color, with stirring device
- With separate control

Advantages

- Easy to install
- Extension of the product portfolio



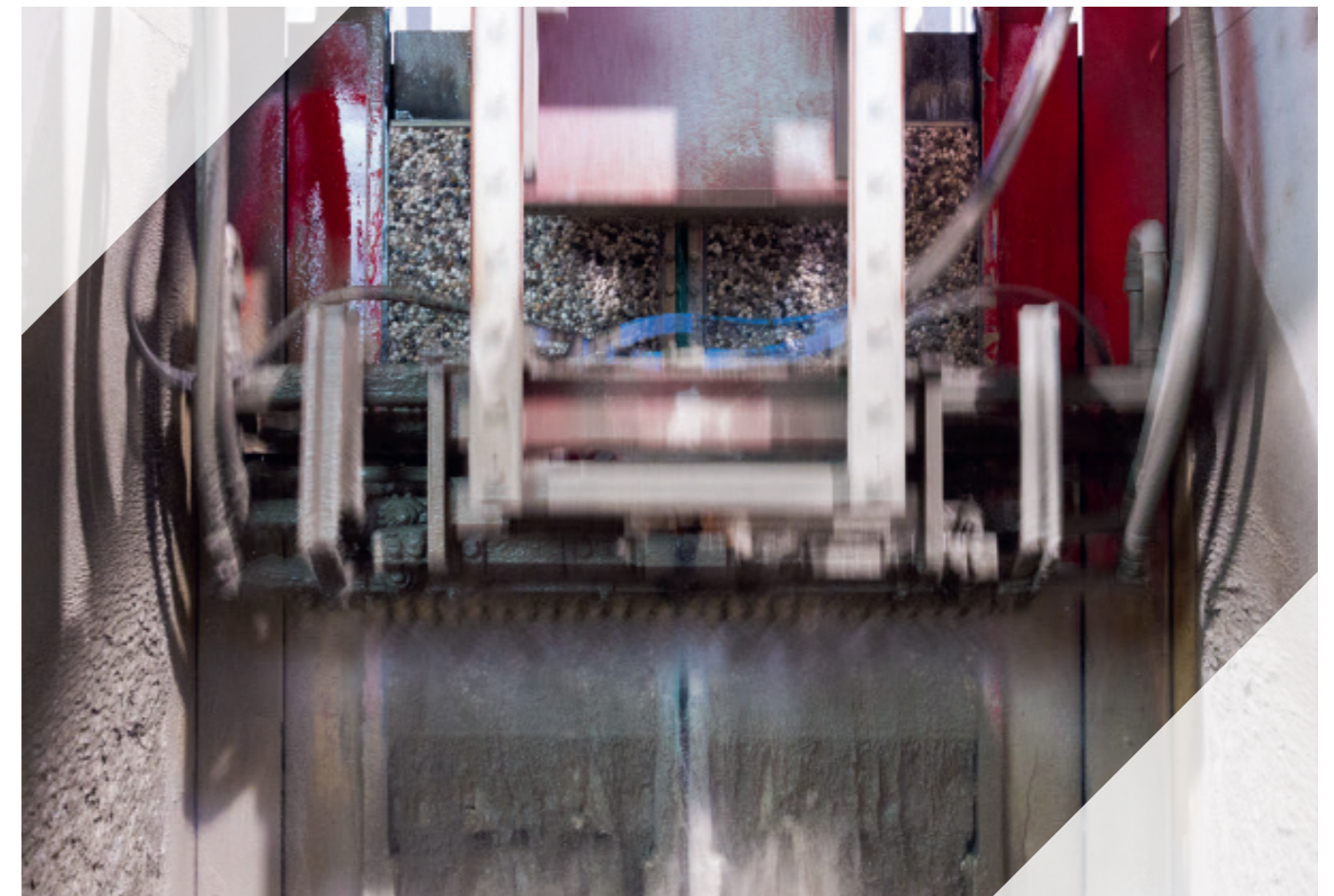
DIRECT WASHING MACHINE

- For washing of green slabs in press cycle as bypass turntable version or as a small-footprint inline version which can be activated optionally
- World-first 4-fold 40/40 cm and 50/50 cm in press cycle, 2-fold 60/40 cm, etc.
- With high-performance water jets and rinsing device for brilliant colors without cement film
- Slab thickness 40–100 mm
- Smooth clamping of products

Consisting of:

- Solid frame in sturdy tubular steel construction
- Lifting unit
- Support arm
- Washing frame
- Washing nozzle holder with corresponding piping and pump

Turning, swivelling and lifting drives with servo motor for exact positioning.



FLAT DEPOSITING DEVICES

In separated execution for wet side and for dry side.

Flat depositing device-wet side

Consisting of:

- Pallet tower intake (empty steel pallets) by finger car or forklift
- Pallet singulation
- Green slab depositing
- Optional direct washing of slabs via bypass or inline
- Stacking of loaded pallets
- Pallet tower take off by finger car or forklift

All vertical, horizontal and lateral movements via servo drives, thus dynamic acceleration and freely positionable take-off and handover points.

Horizontal pallet movement by walking beam conveyor system via frequency-controlled gear drive.

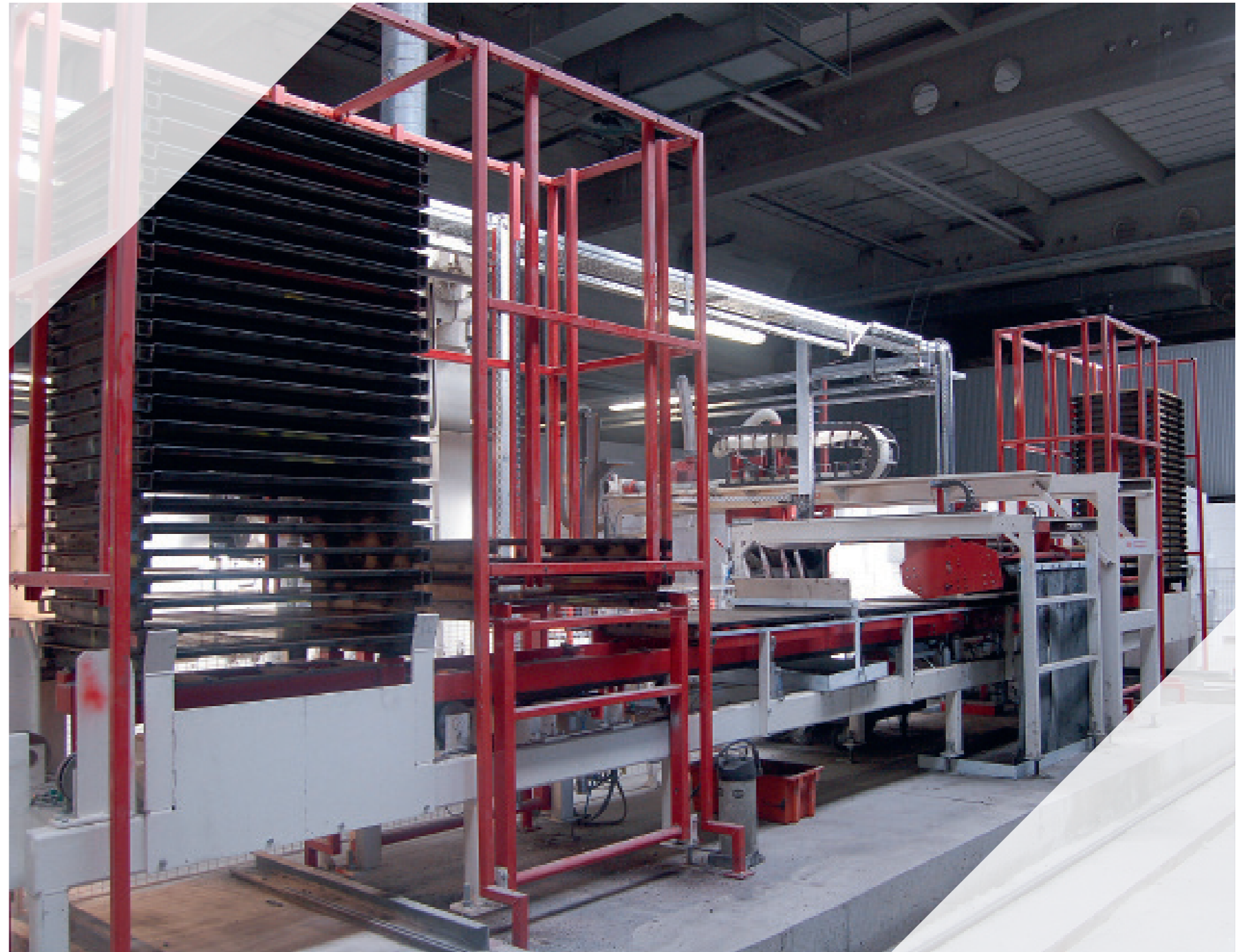
Flat depositing device-dry side

Consisting of:

- Pallet tower intake (loaded steel pallets) by finger car or forklift
- Pallet singulation
- Take-off of the cured slabs and handover to the value adding line or packing line
- Fully automatic pallet cleaning and pallet oiling
- Stacking of loaded or empty pallets
- Pallet tower take off by finger car or forklift

Pallet tower movements vertically via hydraulic stroke.

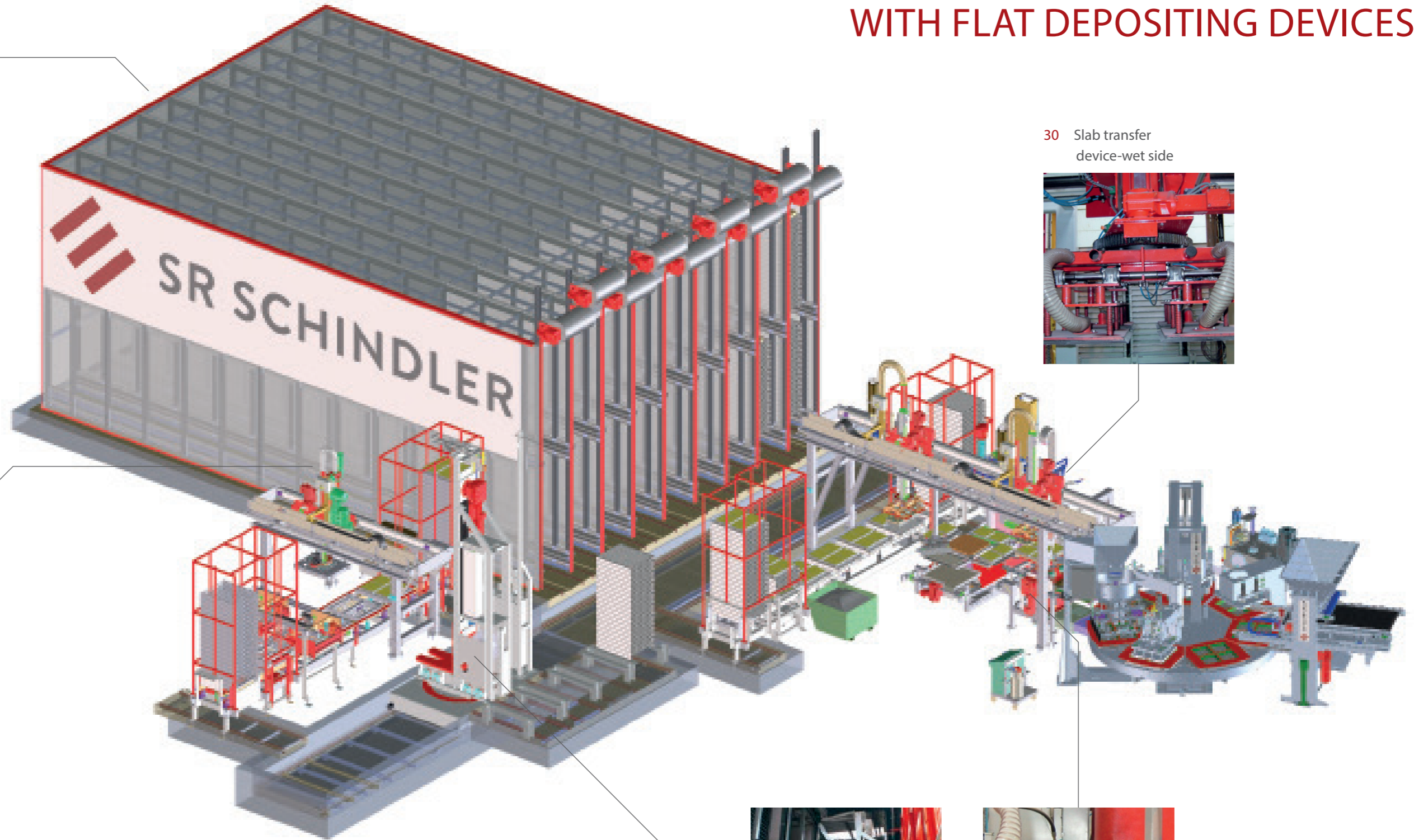
Galvanized steel pallets for steam treatment and vaporization in the curing chamber.



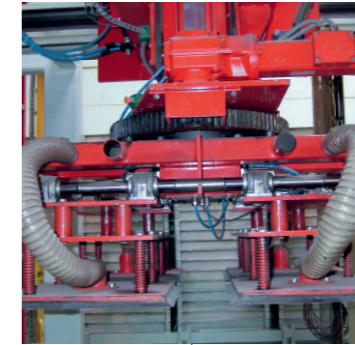
31 Curing chamber



HERMETIC PRESS WITH FLAT DEPOSITING DEVICES



30 Slab transfer device-wet side



30 Universal slab transfer device-dry side



31 Finger car



30 Green slab turning device

HANDLING & CURING

Green slab turning device

- To remove the slabs from the slab depositing carriage by means of a vacuum lifter for 180° turning and for delivery to the slab transfer device of the flat depositing device-wet side
- Consisting of a solid frame, servomotor turning arm and a lifting unit with interchangeable suction units depending on the slab formats
- Quick adjustment to product height by servomotor lifting movement of the suction frame

Slab transfer devices

- Slab transfer device-wet side picks up the products from the carriage or from the green slab turning device and passes them to the following flat depositing device-wet side
- Universal slab transfer device-dry side takes the products from the flat depositing device-dry side and passes them to the value adding line or packing line
- Consist of electrically driven horizontal slides, lifting mast and turning device and format-dependent suction units on the wet side and a universal vacuum suction plate for all formats on the dry



side, with vacuum generator

- Travel, lifting and rotary drives designed as servomotors

Finger car

- For transporting the filled pallet stacks with green slabs to the shelf spaces, the empty pallet stack to the flat depositing device-wet side and the pallet stack with cured slabs to the flat depositing device-dry side, and for transporting the empty pallets from there to the press or shelf
- Fully automatic, including control. The system is designed so that two pallet stacks can be positioned one above the other in the shelf spaces
- Upper carriage designed with 180° turning device so that the loading and unloading positions can be opposite to each other

Curing chamber

- To shorten the curing time and reduce the required number of pallets
- Further increase in product quality (reduction of efflorescence)
- In galvanized steel version
- Available as a large-chamber or single-chamber system including empty chambers
- Complete system insulated and equipped with roller gates

Various systems can be used to optimize the curing process:

- Specific heat
 - By heat of hydration during curing of concrete
- Vaporization
 - Steam within a few seconds
 - High efficiency
 - Low emissions
 - Low space requirement
- Moisturization system
 - No moisture formation due to standing fog
 - Less water consumption
 - Low energy consumption

For all curing processes, air circulation systems are advantageous for uniform temperature and moisture distribution inside the chamber.

- Air circulation systems
 - For even distribution of air within the chambers
 - Extraction of the chamber air to dry the chamber
 - Direction of the chamber air after the curing process into a new chamber for preheating. Savings of around 20% of the heating costs

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