
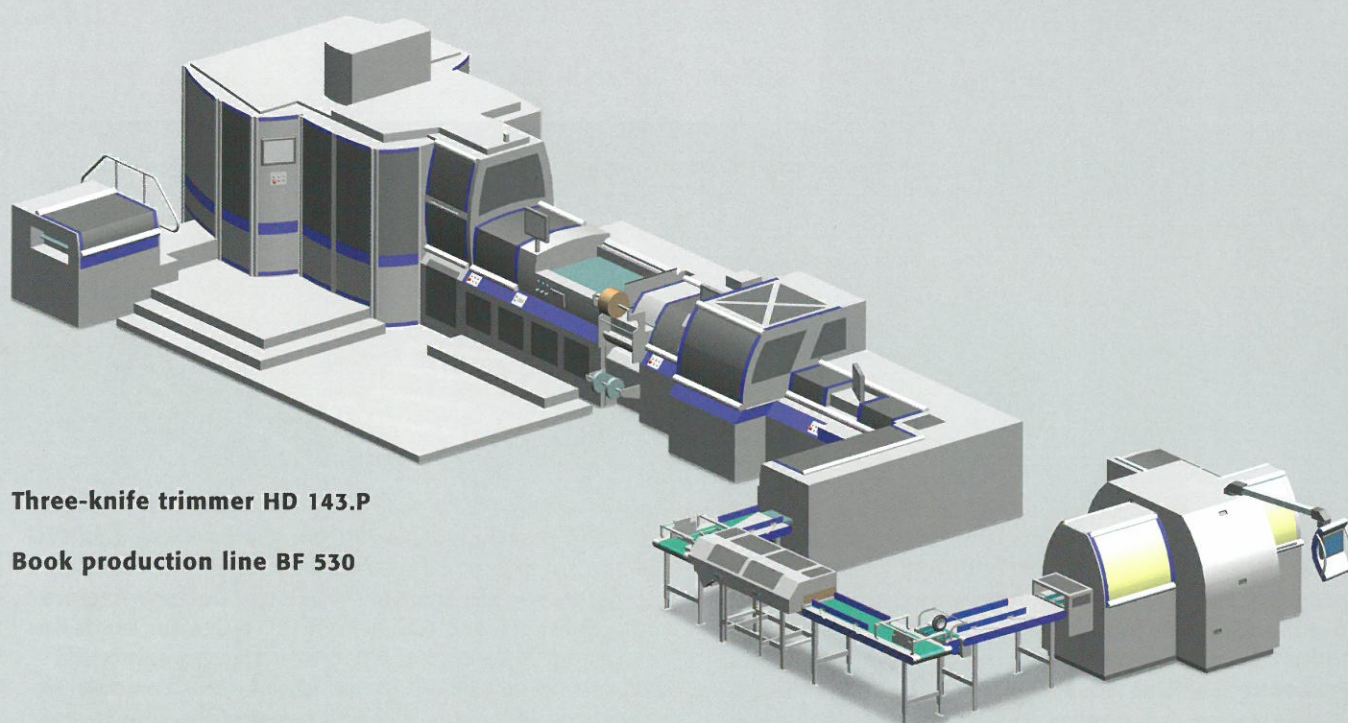


Book finishing - 70 cycles/min

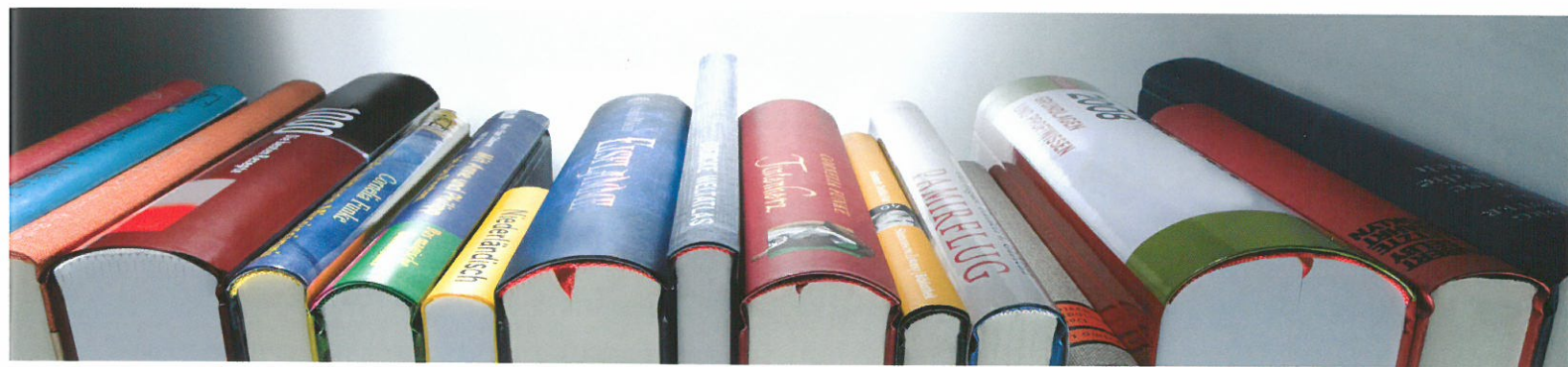
- 
- ▶ **Three-knife trimmer HD 143.P**
 - ▶ **Book production line BF 530**
 - ▶ **Jacketing machine SU 651**

KOLBUS book finishing | inline configuration • example 70 cycles/min



► **Three-knife trimmer HD 143.P**

► **Book production line BF 530**



HD 143.P

Three-knife trimmer
70 cycles/min

Page 4



BF 530

Book production line
70 cycles/min

Page 10



SU 651

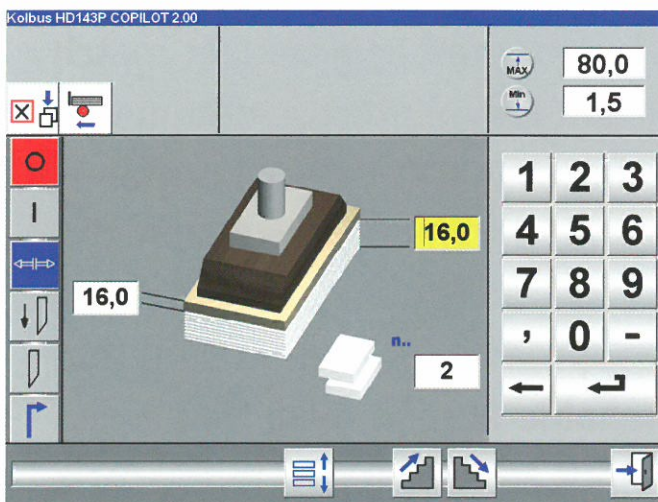
Jacketing machine
70 cycles/min

Page 24

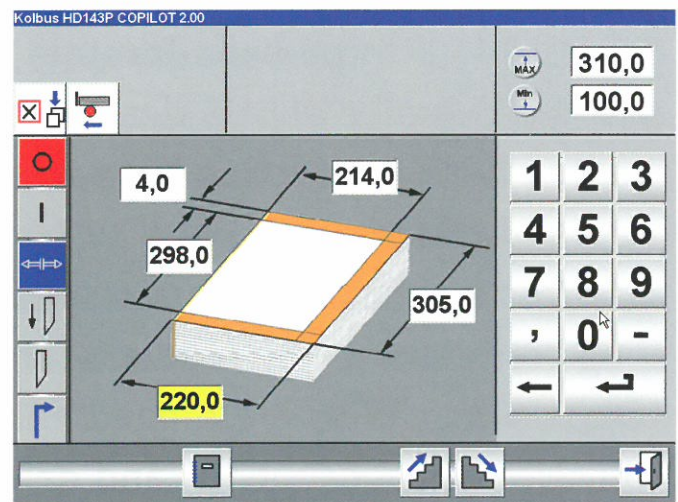
Three-knife trimmer HD 143.P

The HD 143.P three-knife trimmer is engineered as a perfect match with the overall KOLBUS design concept. It's the ideal component in modern book production lines operating at 70 cycles/min. Combining tried-and-tested mechanical systems with ultramodern electronics produces machines that are very easy to operate and capable of delivering premium quality products. This approach also makes sure that KOLBUS machines are rugged and reliable over long service lives. Conveyor control (option) and data input are integrated in the three-knife trimmer.





▲ Block thickness, cardboard thickness and number of products per stack



▲ Format input

■ KOLBUS Copilot® system

Key features:

- ☐ Central operator panel for data entry and operation
- ☐ Touch screen monitor
- ☐ Error messages
- ☐ Change parts display
- ☐ Automatic format setting
- ☐ Title memory
- ☐ Display change parts for the next job during prior job processing
- ☐ Master control centre
- ☐ Automated data management
- ☐ Remote diagnostics

■ Touch screen monitor

Touch screens are state-of-the-art for man/machine interfaces. The operator is guided smoothly through the operating procedures. Operating instructions are displayed without text as self-explanatory graphics. Functions are activated by touch.



▲ Touch screen operator panel for data entry and operation

HD 143.P – knife stroke

▼ **Start position**
Side and
front knives



▼ **1. Cutting:**
front knife



▼ **2. Cutting:**
side knives



▼ **Delivery gripper**



▲ **Infeed and trimmer unit**

■ **Infeed/magazine**

Book blocks arrive at the three-knife trimmer on a transport belt. Feed frequency is adjusted via an intermittently operating roll to match the speed of the upstream machine and the format of the block.

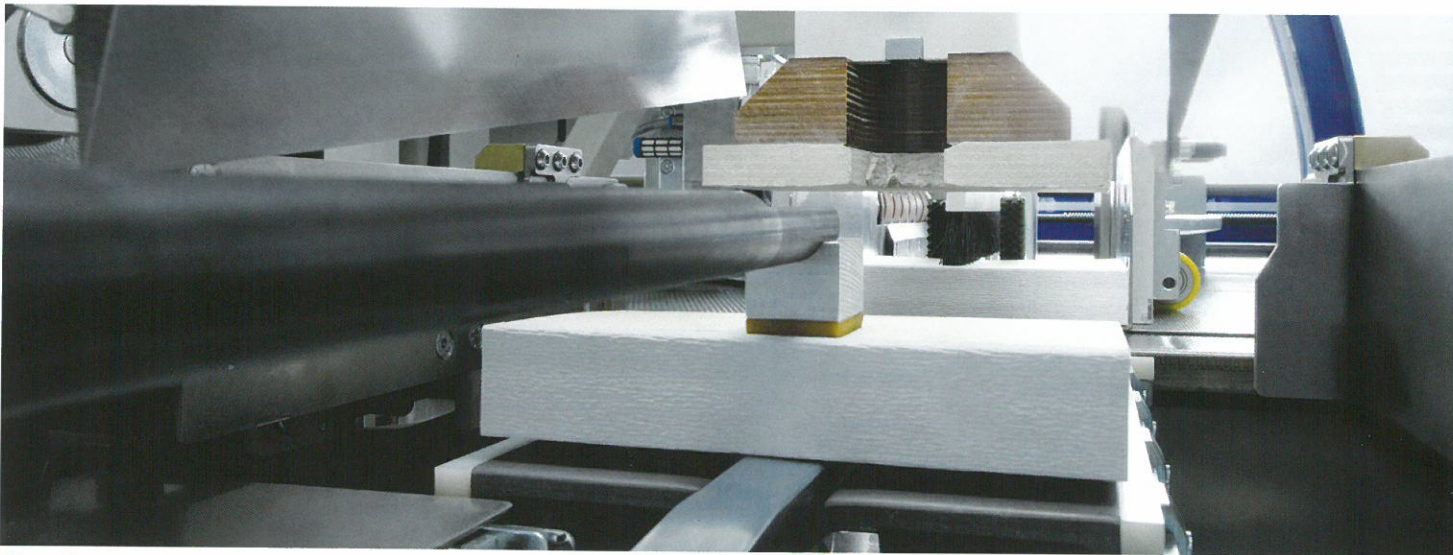
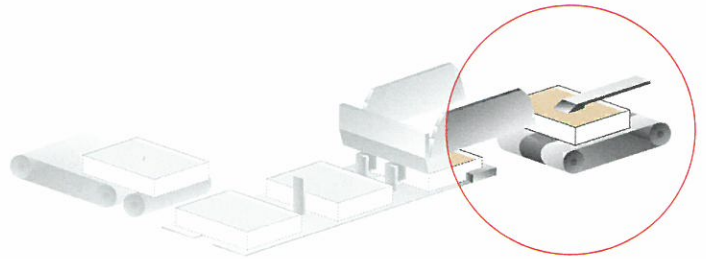
Products can be stacked in the magazine: the number of blocks in each stack is preset. A push-feeder unit takes over a stack, or a single product, pushing it spine-first along the feed channel and into the trimming station.

If the feed is interrupted, the three-knife trimmer stops operating and switches automatically into wait mode to reduce wear on the machine and cutting sticks and extend knife life.

■ **Alignment and trimming**

The product to be trimmed is lifted gently onto the cutting table by a push-feeder. Smooth, controlled movements avoid the risk of damaging even delicate materials.

Products are aligned in the trimming station by the alignment pusher. Once the product is in position, the pushers are retracted and the pressing block is run down to hold it compressed and in place. Pressing block height is set by a motor actuator. The pressure can be adjusted for gentle handling of even the most delicate products.



▲ Products are lifted and delivered by grippers

Trimming – first the front and then the sides – is a smooth, tightly-controlled process. The movement sequence of the side knives is engineered to keep wear on the knives and the machine to an absolute minimum. The knife stroke for trimming magazines and brochures has been optimised as a pulling cut to reduce the risk of the paper tearing and buckling.

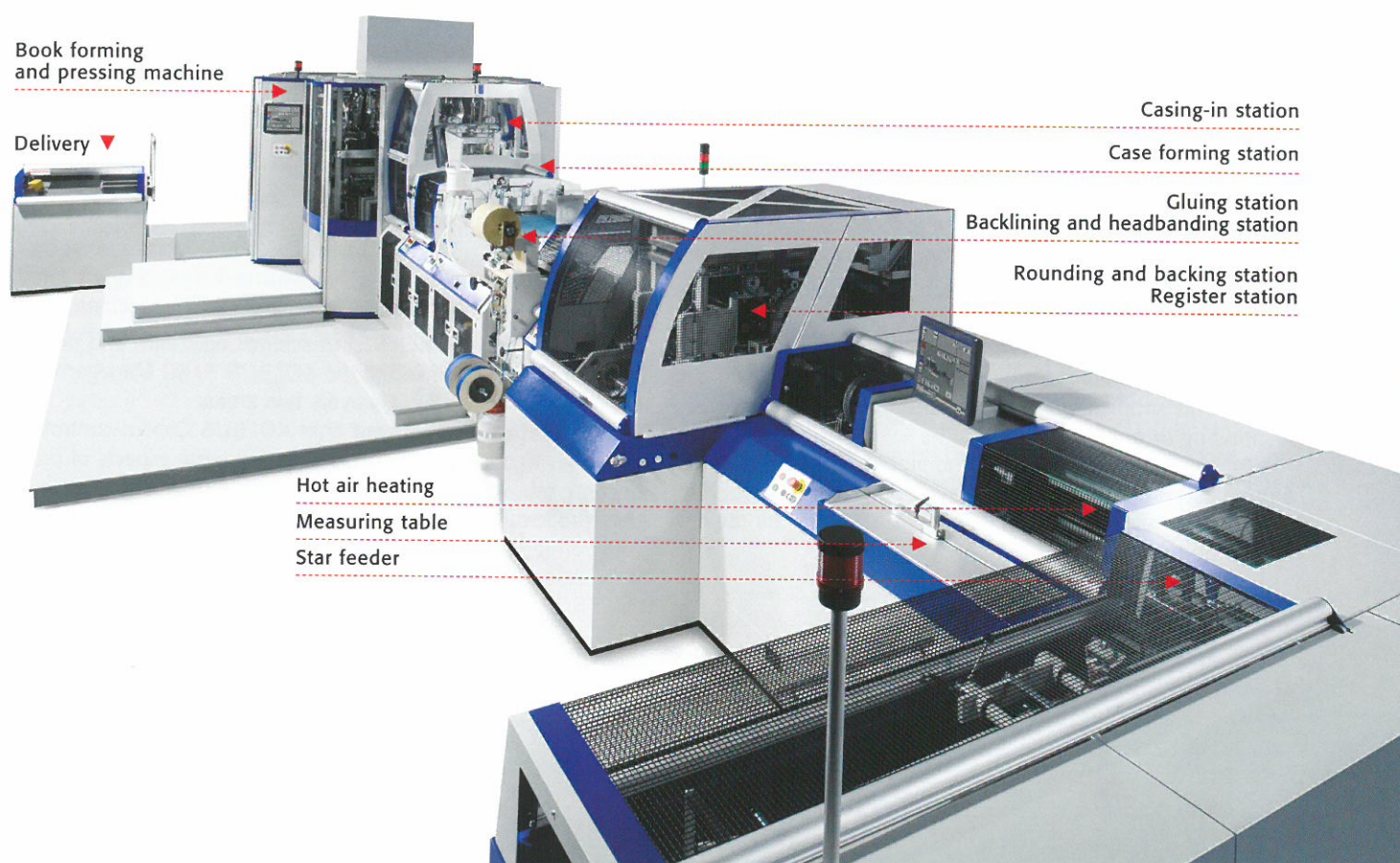
Air nozzles on all knife holders blow trimmings directly into the extractor ducts. This effective method of extracting trimmings prevents any subsequent problems with trimming residues on the transport belts or downstream machines.

■ Delivery

The trimmed products are picked up gently by a gripper and deposited on a conveyor belt. Belt speed is automatically synchronised with the trimmer's current operating speed.

Book production line BF 530

The KOLBUS BF 530 book production line, with its unique machine dynamics, sets new standards for quality and productivity. The outstanding innovation is the fact that the product – from block to finished book – is positively transported at all times. Notwithstanding the many innovations, the BF 530 draws strongly on successful features from tried-and-tested KOLBUS book finishing lines. This guarantees a stable process and high machine availability in tough and continuous use.





▲ Touch screen operator panel



▲ BF 530 – Entering dimensions

■ KOLBUS Copilot® system

Quick and easy resets, data exchange between machines, zero-error operation – the KOLBUS Copilot® system handles all this and much more with ease. The operator is guided smoothly through the operating procedures. The Copilot creates the conditions for productive teamwork between operator and machine.

A set of operating instructions is integrated for instant access. This simplifies and speeds the operator's job, eg, responding to error messages.

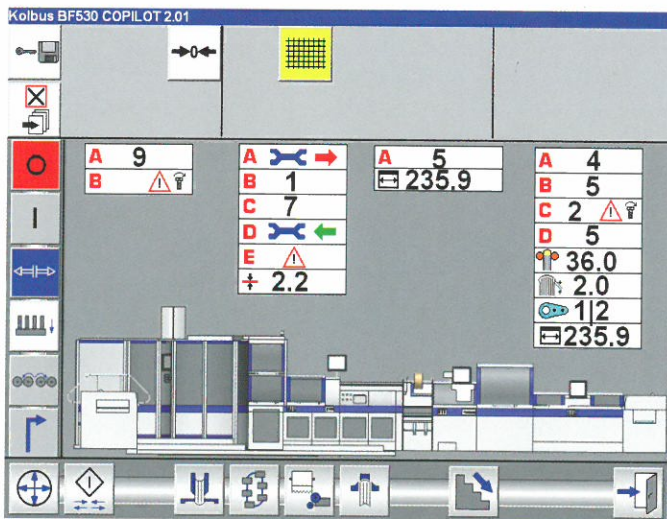
All control components are monitored constantly during a production run. Errors are displayed on-screen and logged. They can be reported to KOLBUS service experts via the service portal.

The main BF 530 operator interface is a central touch screen with key sets at operating points along the line. All machine functions and control data are clearly displayed as colour-coded diagrams and realistic images.

■ KOLBUS 3•60

The BF 530 and the KOLBUS machines upstream and downstream of it can be linked to the KOLBUS 3•60 Management Report System. The 3•60 covers two areas:

System data management links KOLBUS Copilot-controlled machines to control and evaluate the following aspects of production: job processing, production scheduling, online evaluation, production, customer resource management, machine monitoring and set-up. Data exchange with JDF components is available as an option.



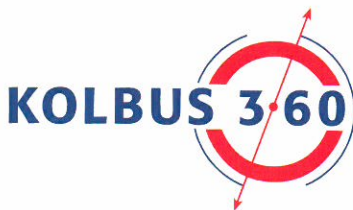
▲ BF 530 – Exchange parts listing



▲ Measuring table

The **service portal** allows live and simultaneous communication between the customer and KOLBUS service experts.

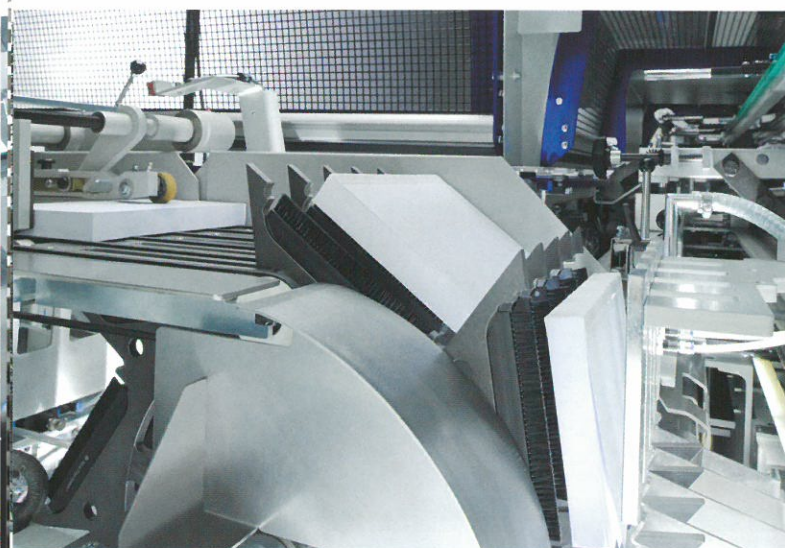
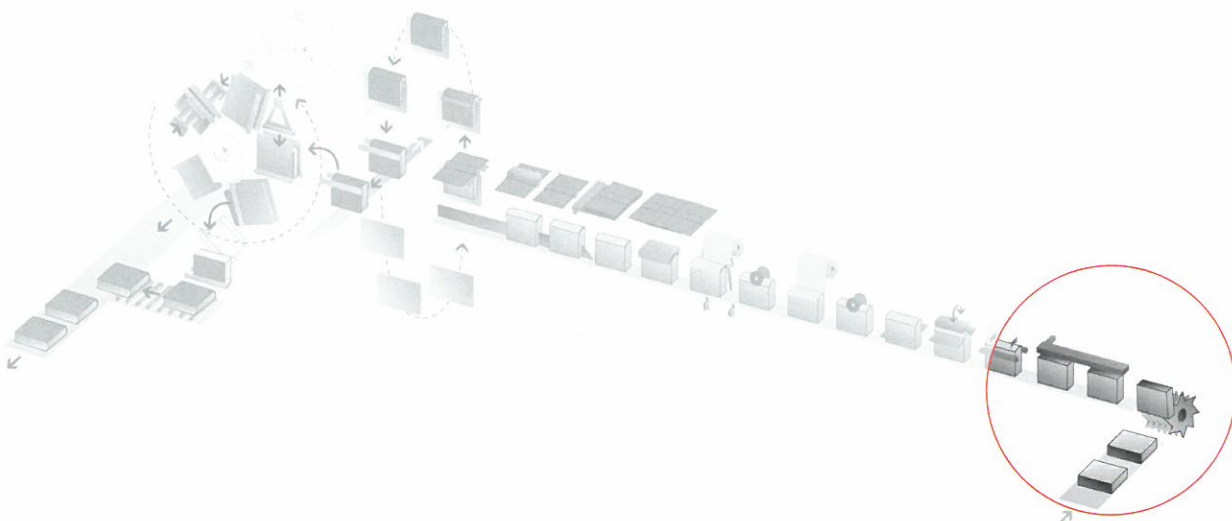
The 3•60 consists of the internet-based remote diagnosis and service module for networked KOLBUS machine installations, the maintenance manager for scheduling, displaying and documenting service, maintenance and inspection activities, and the documentation manager to document machine operation.



■ Measuring table

The book block and the case are measured on the measuring table and the dimensions automatically captured by the software. These dimensions are used in automatic set-up of the whole line – from the infeed to the final delivery from the forming and pressing machine. All dimensions, including corrections, can be stored and called up for repeat jobs. The operator can check on or intervene in important machine functions at any time from operating points in each machine section.

A new product can be measured while the previous job is running. The required exchange parts are displayed, so that they can be readied for the new job.



▲ Star feeder



▲ Integrated hot air heating

■ Motor-actuated format set-up

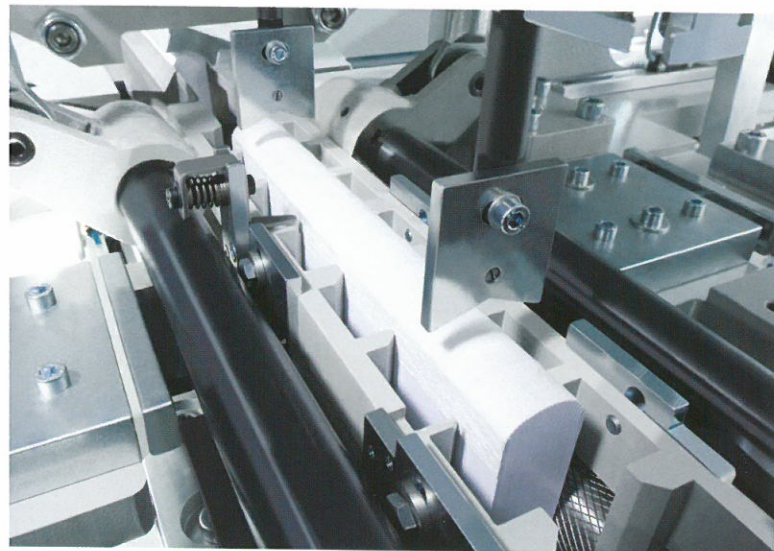
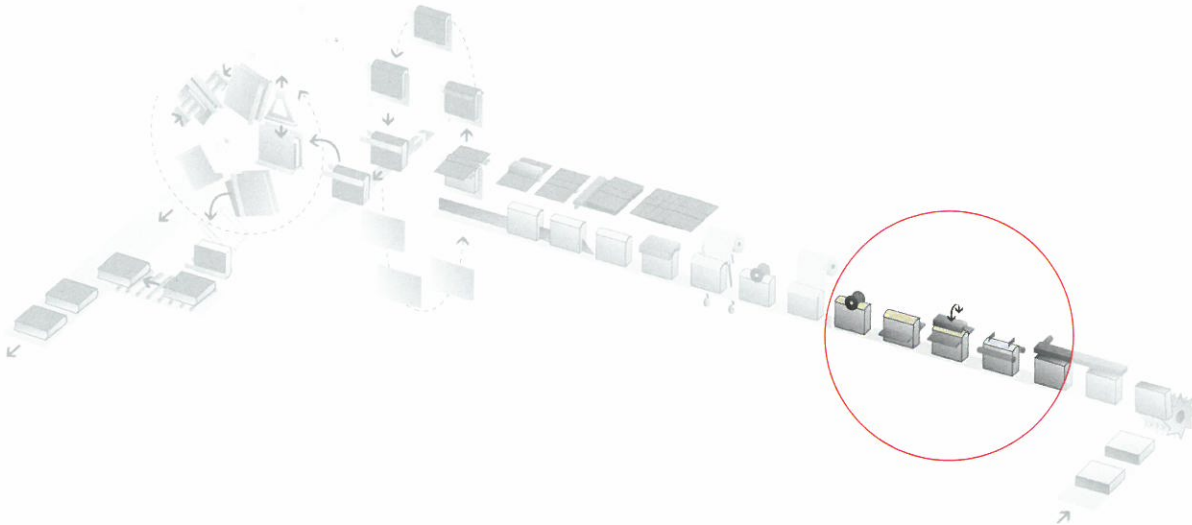
Once format data have been entered, the operator activates the automatic set-up process. The timing of the different adjustments has been optimised. Many adjustments are carried out in parallel or in a nested sequence.

The relevant axes are automatically repositioned to allow easy access for swapping change parts. Material-dependent fine adjustments can be made without interrupting production. The Copilot system stores the new settings.

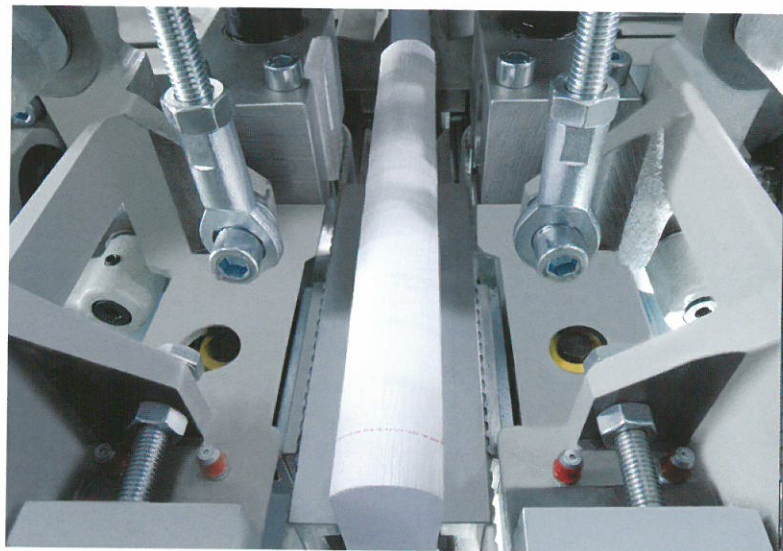
■ Production monitoring

Stoppages can never be entirely avoided. They are caused either by machine malfunction or by problems with the materials being processed. The Copilot error messages supply clear information in the form of graphics, diagrams or realistic images, locating the stoppage and identifying the cause. Recommended troubleshooting procedures are also displayed.

Indicator lights in the machine sectors affected by the stoppage help to pinpoint the location. In the case of a product defect, the operator can call up recommended troubleshooting measures on the screen.



▲ Rounding station



▲ Register station

■ Infeed

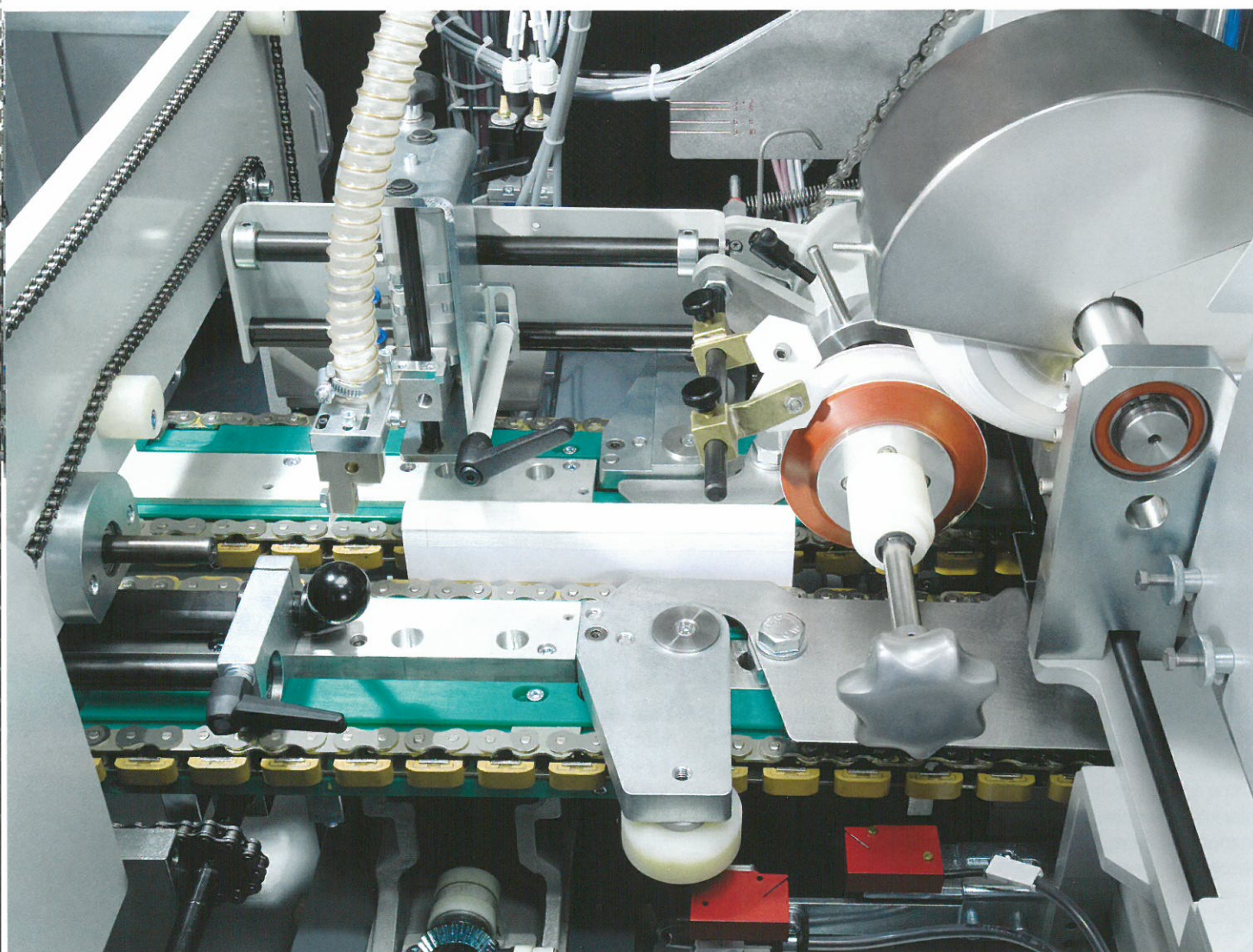
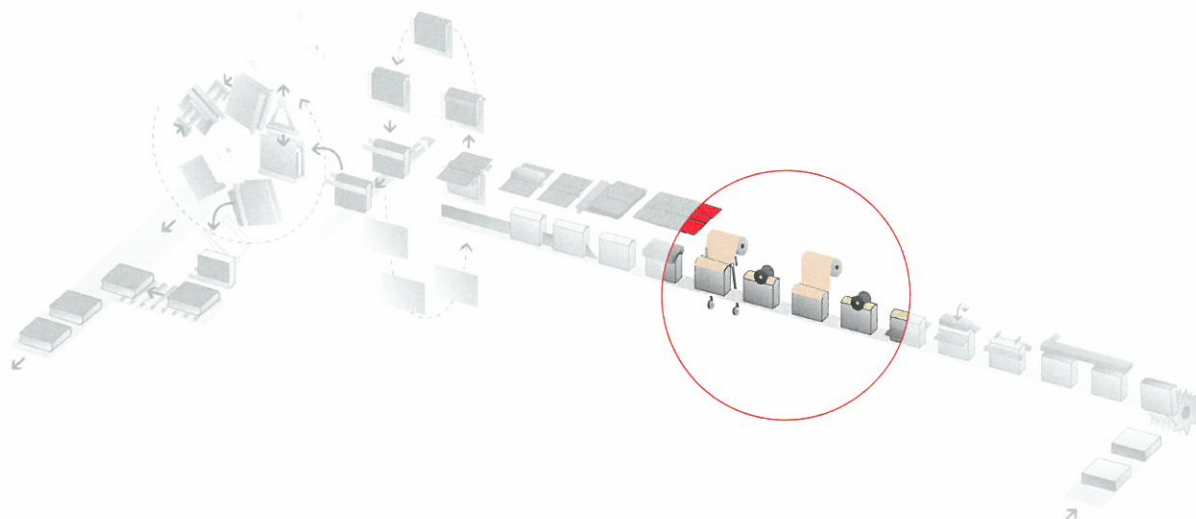
After three-knife trimming and passing through an optional infrared heating zone, the book block is transported on a telescopic belt to a timed gate. The gate opens at preset intervals synchronised with the machine cycle. The block moves, at the same height, to the star feeder. Transport feeders grip the block at its centre of gravity and take it through the preheating station to the rounding station. An optional block alignment recognition avoids stoppages due to wrongly aligned blocks.

■ Rounding and backing station, register station

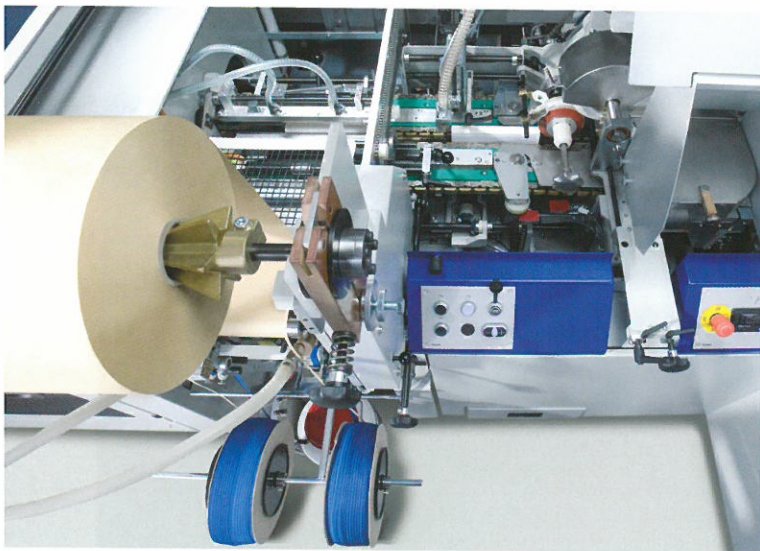
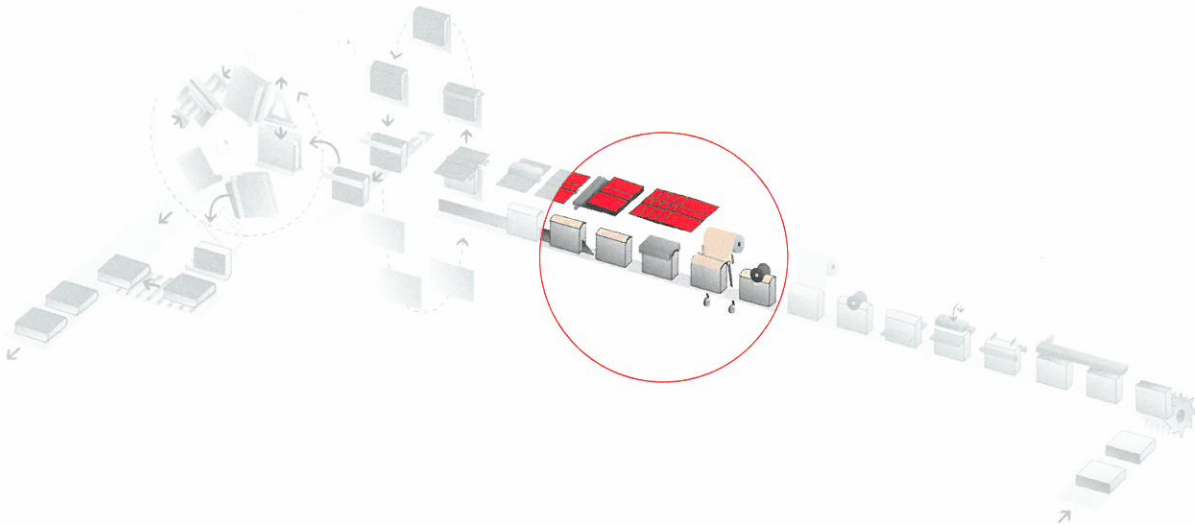
The spine of the block is prerounded and the block precisely positioned. A pair of rolls, one rolling down each side of the block, create an even, symmetrical rounding. This is followed by pressure to stabilise the rounding and form the joint. The system is engineered to create optimal rounding quality and perfect block edges and to avoid the risk of double creases.

In the register station, block height and length are automatically standardised to the correct format so that the downstream gluing and backlining stations need not make any adjustments to cope with deviations from the set format. After the register station, the block which has been held in a transport carriage, is transferred into a transport chain, which moves it on for backlining.

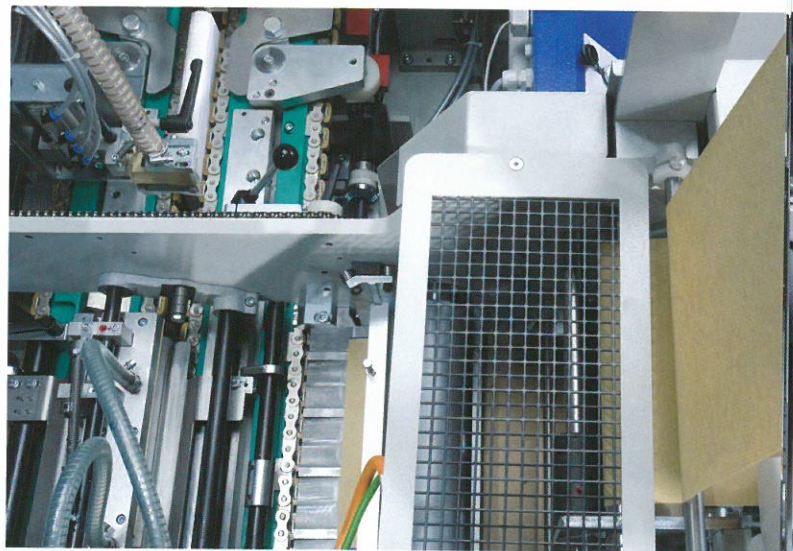
KOLBUS BF 530 | 70 cycles/min



▲ Gluing station



▲ Backlining and headbanding stations



▲ Positively positioned block in the headbanding station

■ Gluing, backlining and headbanding stations

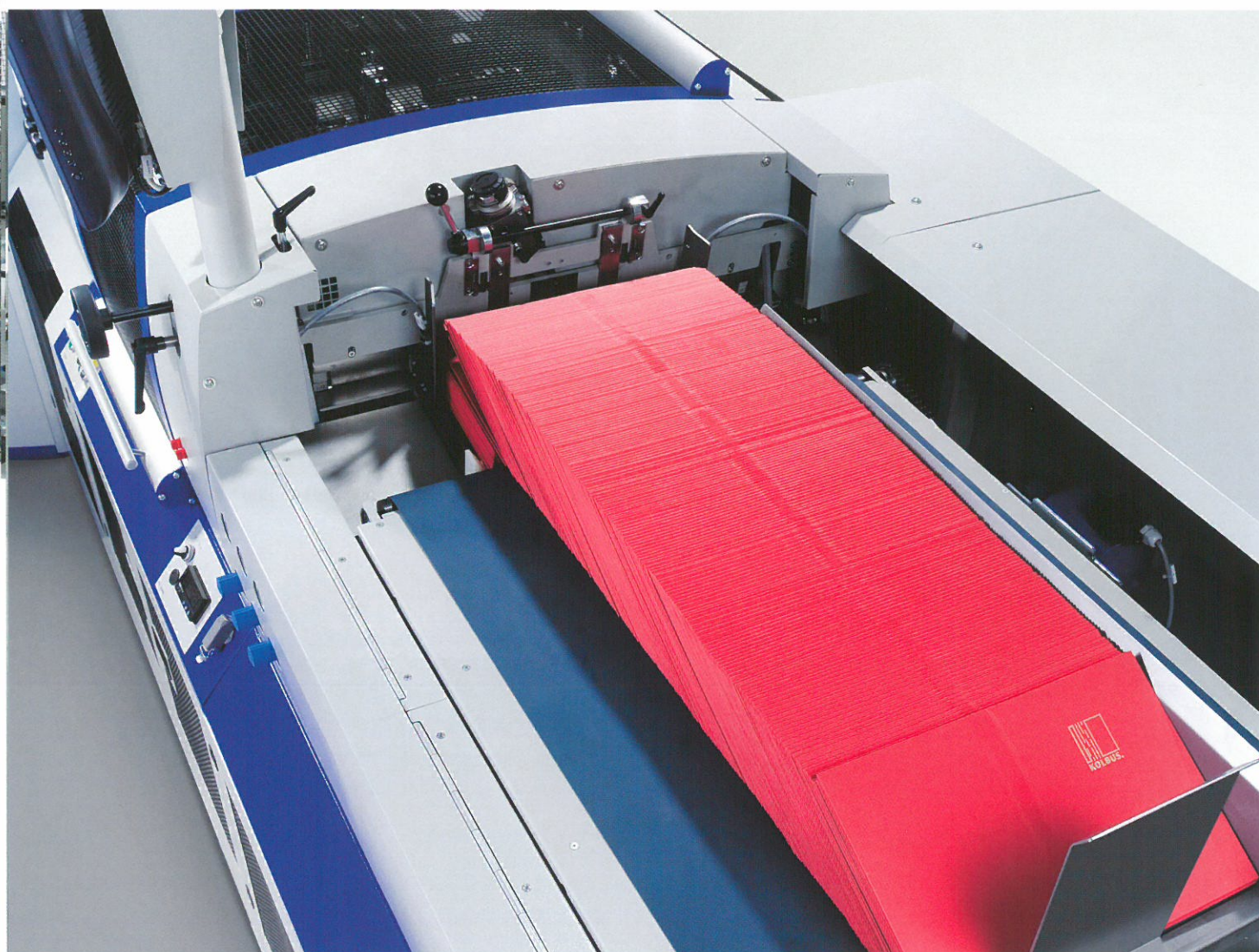
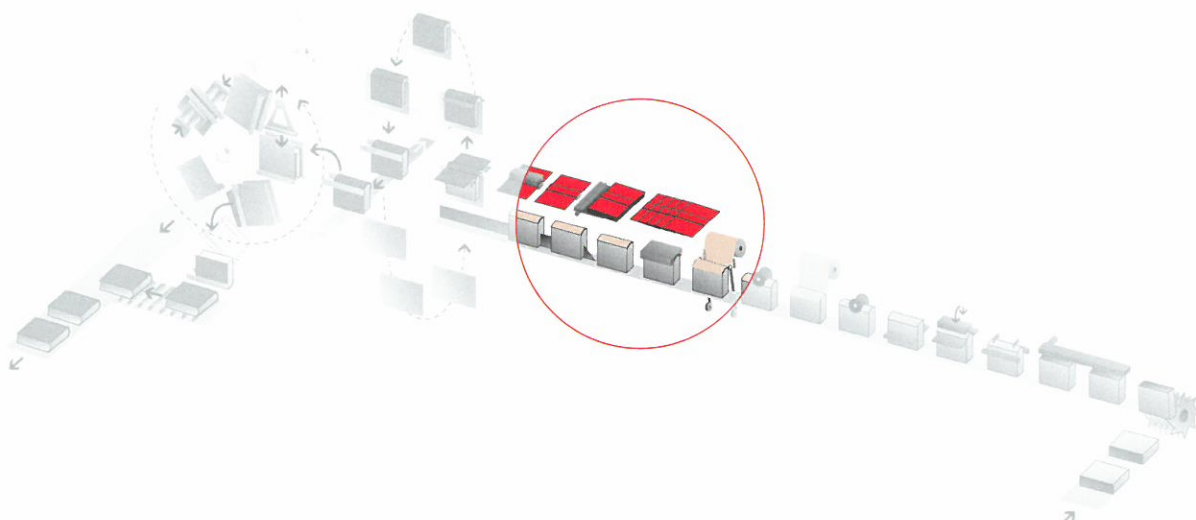
The following stages are gluing, attaching a bookmark ribbon, backlining and headbanding, in that order. The block is guided between frequency-regulated gluing rolls. The rolls swing away only when production stops. Glue is applied cleanly and with great precision; there's no smearing on the block head or foot. Reduced movement helps to reduce wear.

The whole surface of the block spine is coated with glue by shaped gluing rolls. Rolls must be changed to suit different formats. Backlining material from a roll is cut to width by rotary cutters. Headband and backlining material are glued together – the glue is applied by a nozzle. Feed speed for the backlining

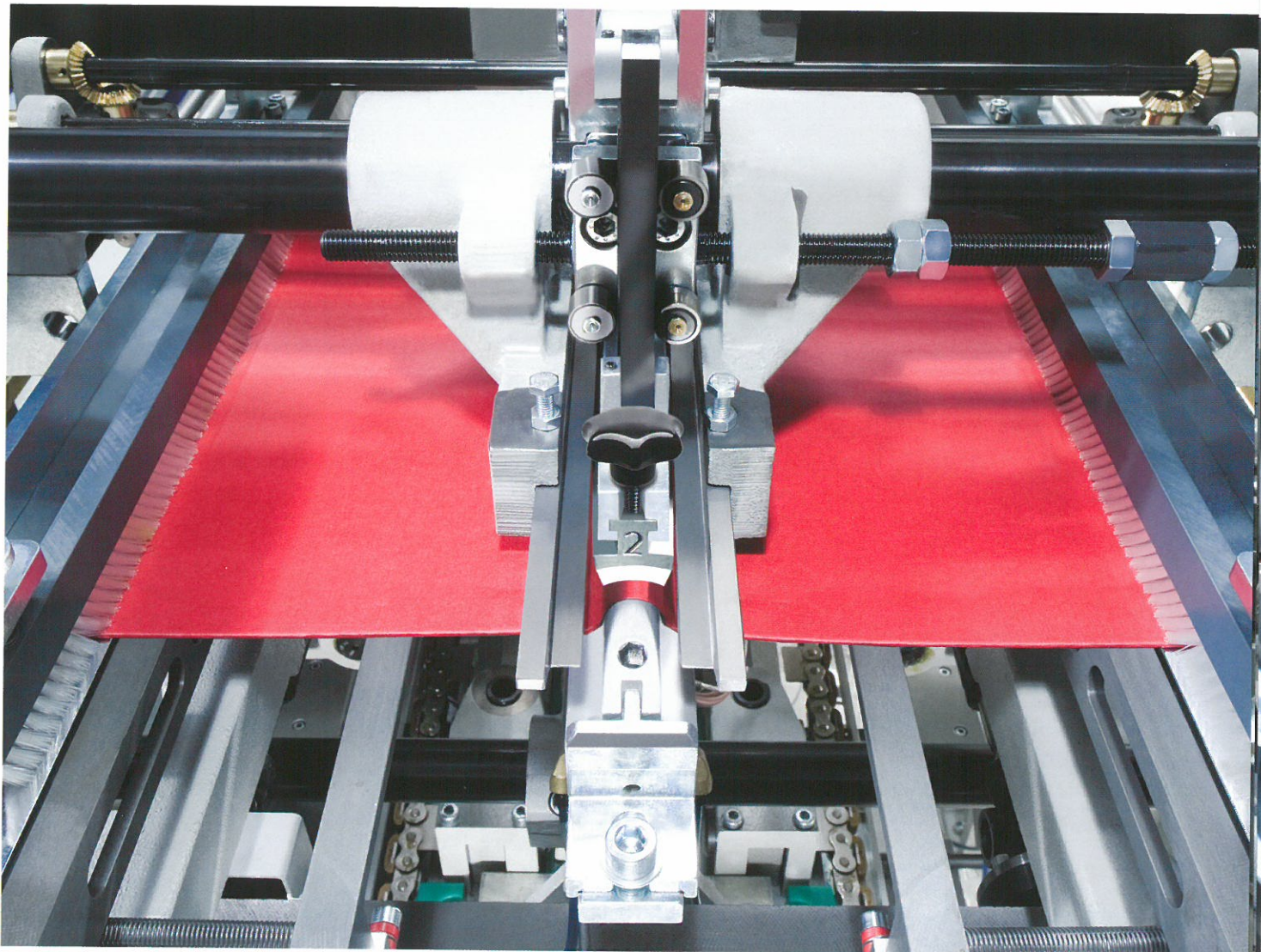
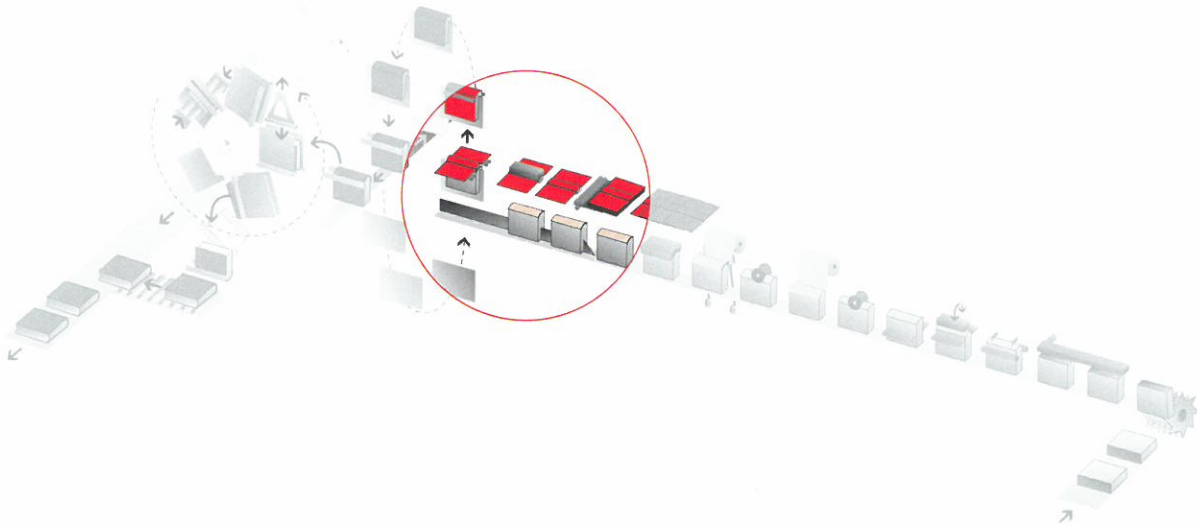
material is calculated by the Copilot and set automatically. A suction table picks up the lining material and places it precisely on the spine of the actively held block. Precise positioning of the headband is supported by a blast of air. The station is active only when it detects that a book block is present.

In the pressing station, the layers of backlining material – 1 x paper, 1 x gauze and paper or 2 x paper – are pressed over the whole area of the spine. Pressing uses either a foam pad – for book blocks with straight or slightly rounded spines – or a Teflon band with an integrated foam pressing element for more extremely rounded spines.

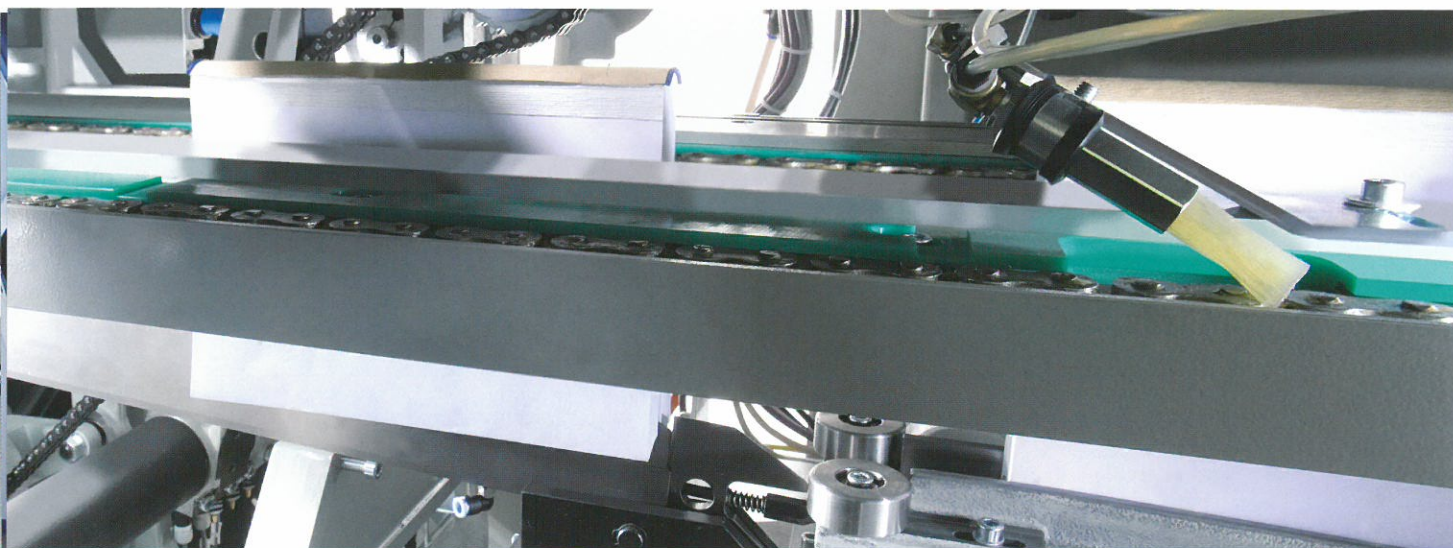
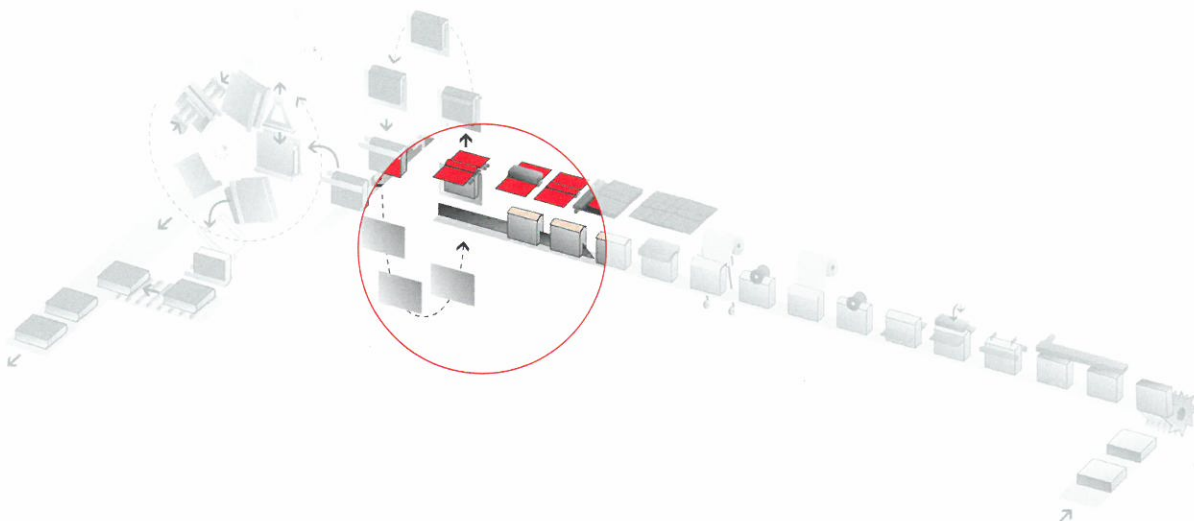
KOLBUS BF 530 | 70 cycles/min



▲ Case magazine



▲ Case forming station



▲ Block splitter

■ Case station, block transport

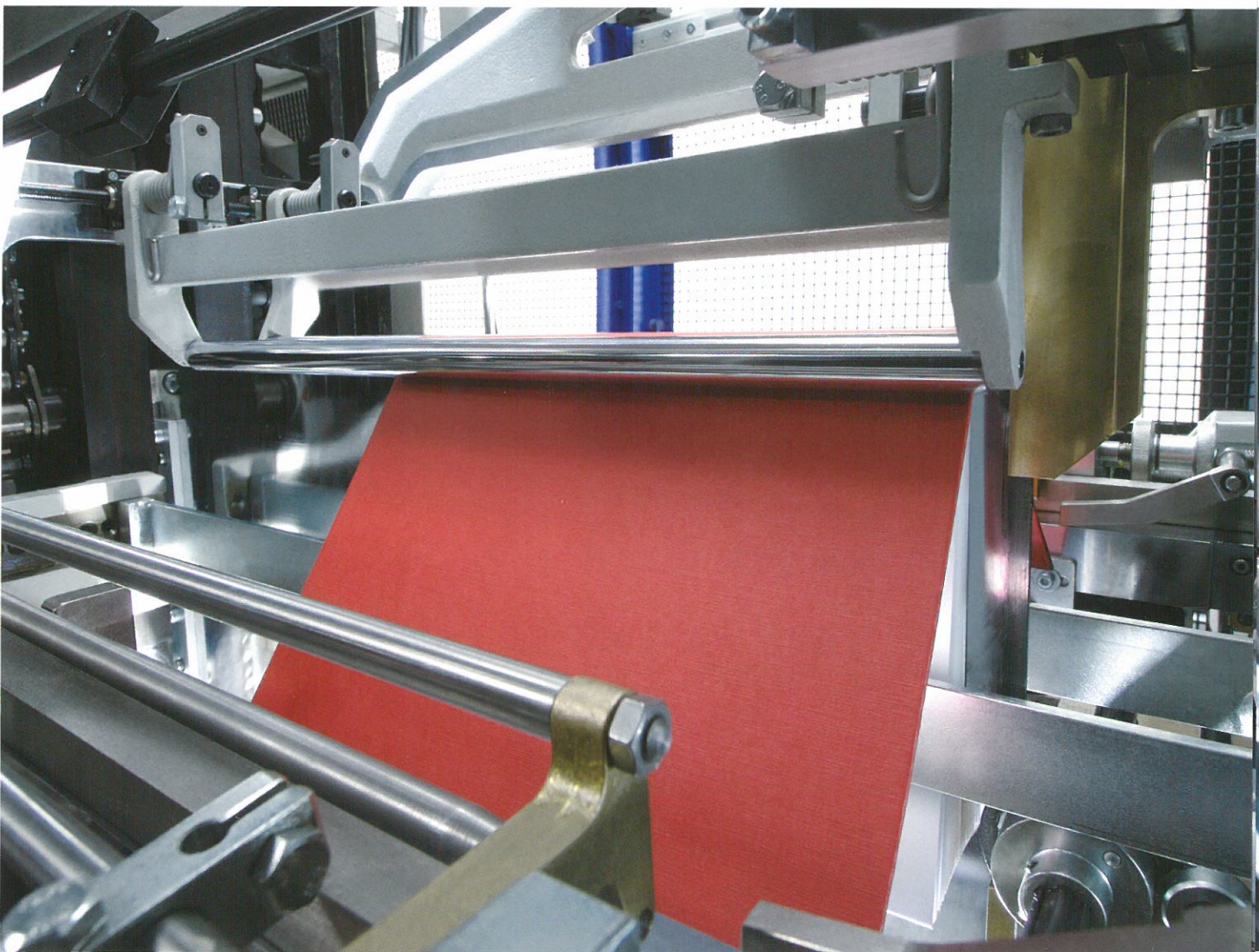
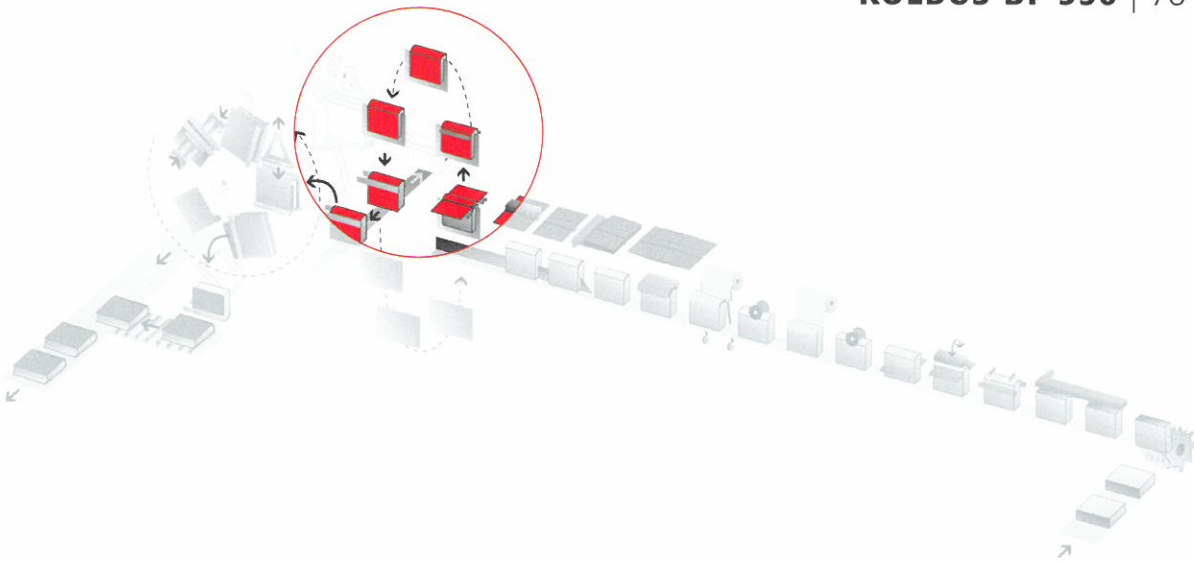
The cases reach the case magazine on the infeed conveyor belt. Changeover from standard hardcover cases to flexible or plastic cases takes a matter of seconds. After separation, the cases are bent in the case bending station. In the heated forming station, the case spines are then rounded to match the rounding of the book block spine.

Blocks are transported in parallel to the covers – below the case station – with the block being opened out from the centre by the patented block splitter. The great advantage is that, the block splitter can be switched from a pointed splitter to a bottom splitter by a simple 180° rotation, without tools or exchanging parts. The block leaves the block transport chain and is pushed into its final position on the book saddle, where it is held firmly.

■ Casing-in station

The circulating transport wings of the paternoster system move the firmly held block between a pair of gluing units, one on either side. Precision gluing rolls apply the glue to the joint and the endsheets. Although the glue layer along the joint is thicker, this technology guarantees that even sharply undercut joints are not damaged.

The glued block is then guided into the precisely aligned case. The two book components are joined in the book clamp. The cased-in book is unloaded from the paternoster by an alternating retrieval system. Swivelling grippers pass the books to the book forming and pressing machine.

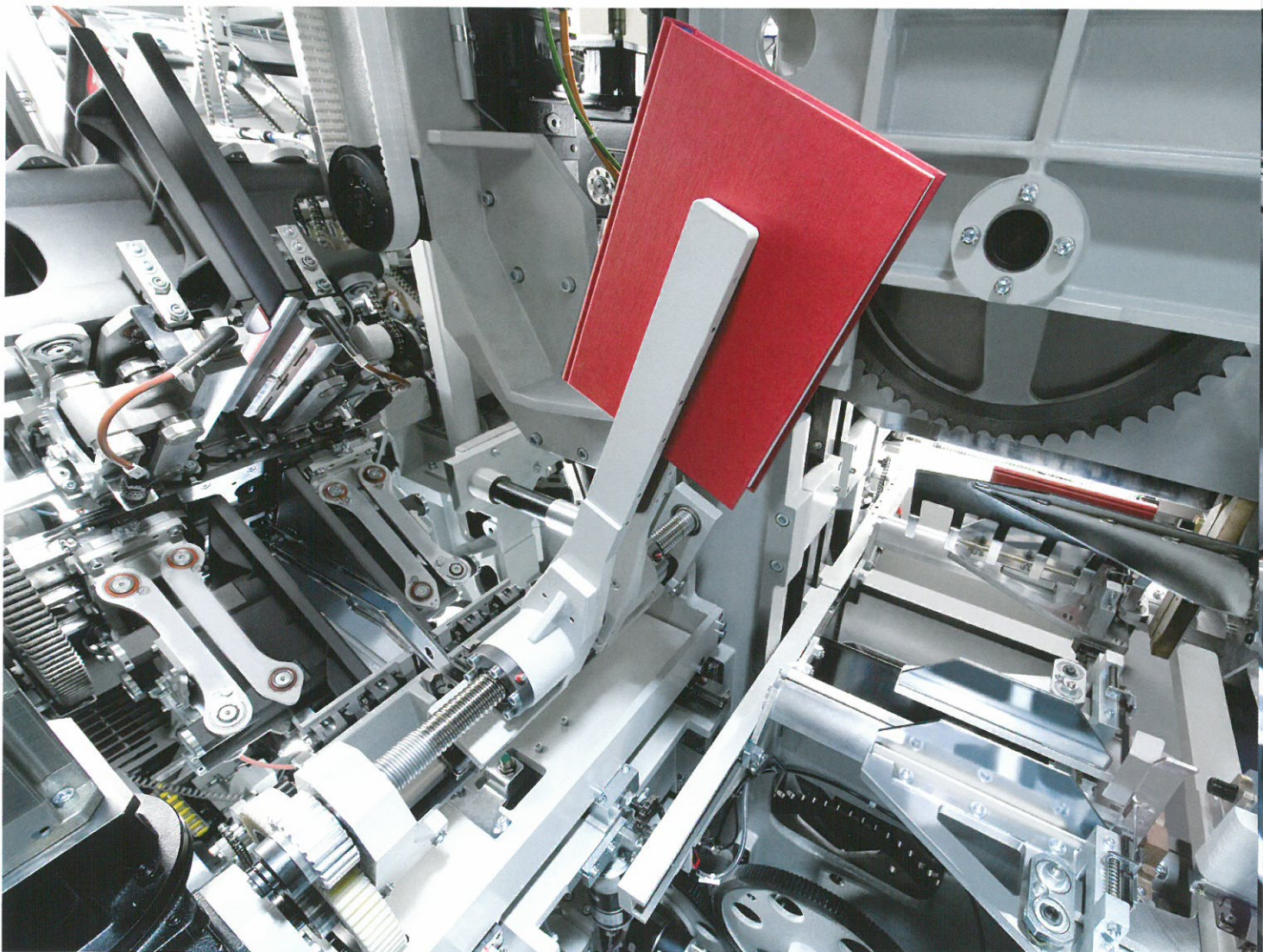
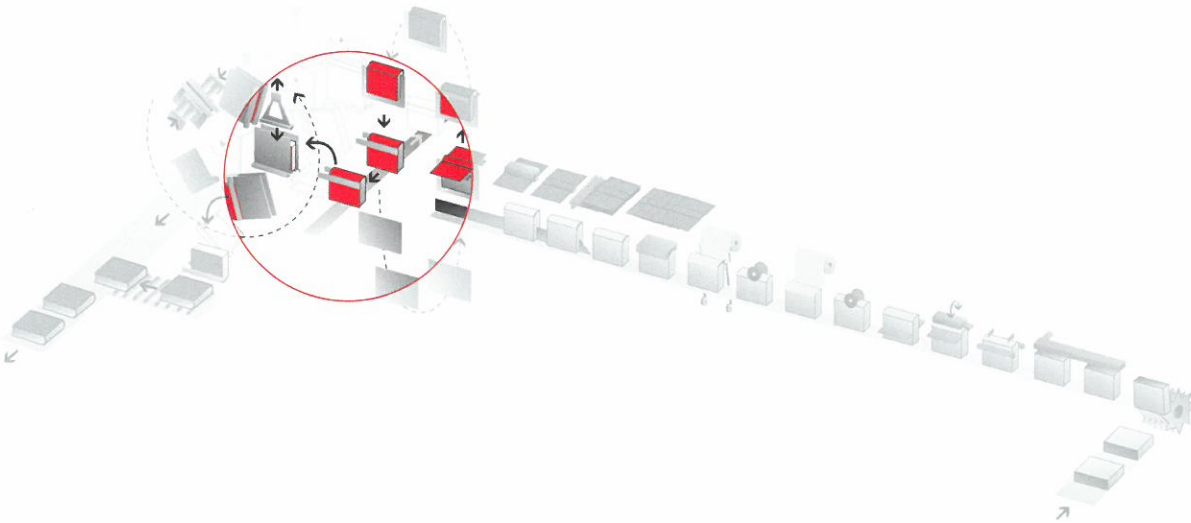


▲ Casing in the book block

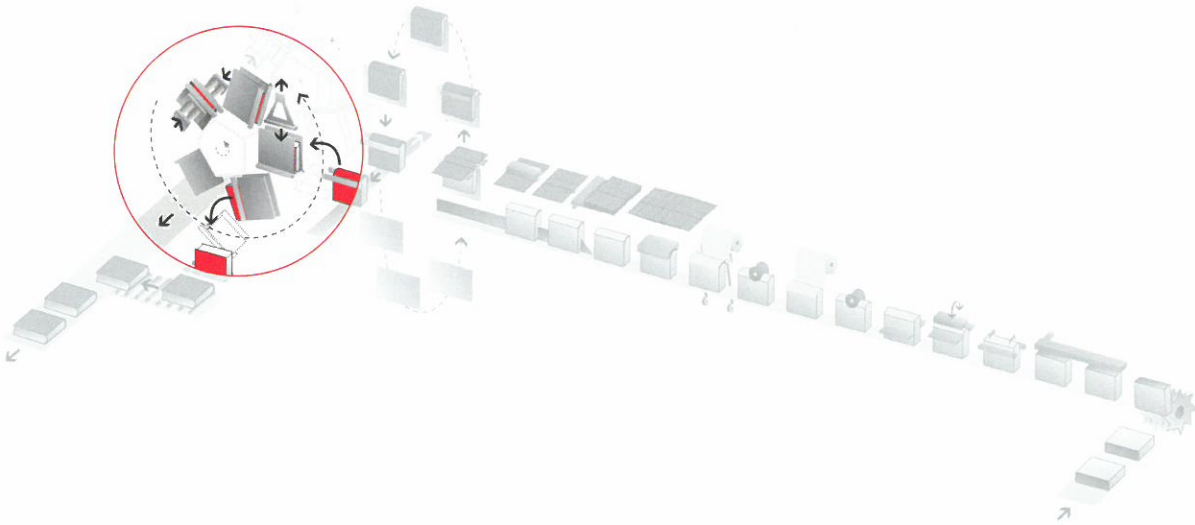
KOLBUS BF 530 | 70 cycles/min



▲ Integrated forming and pressing process



▲ Transferring the book to the press (180°)



■ Book forming and pressing station

The book, held upright on its spine, is aligned by a forming iron that presses the block spine firmly down into the case. The next two steps – joint forming and pressing – are carried out in parallel, with the book being subjected to mechanical pressure up to 10 t. The process takes account of special conditions related to upstream production processes, such as web offset printing.

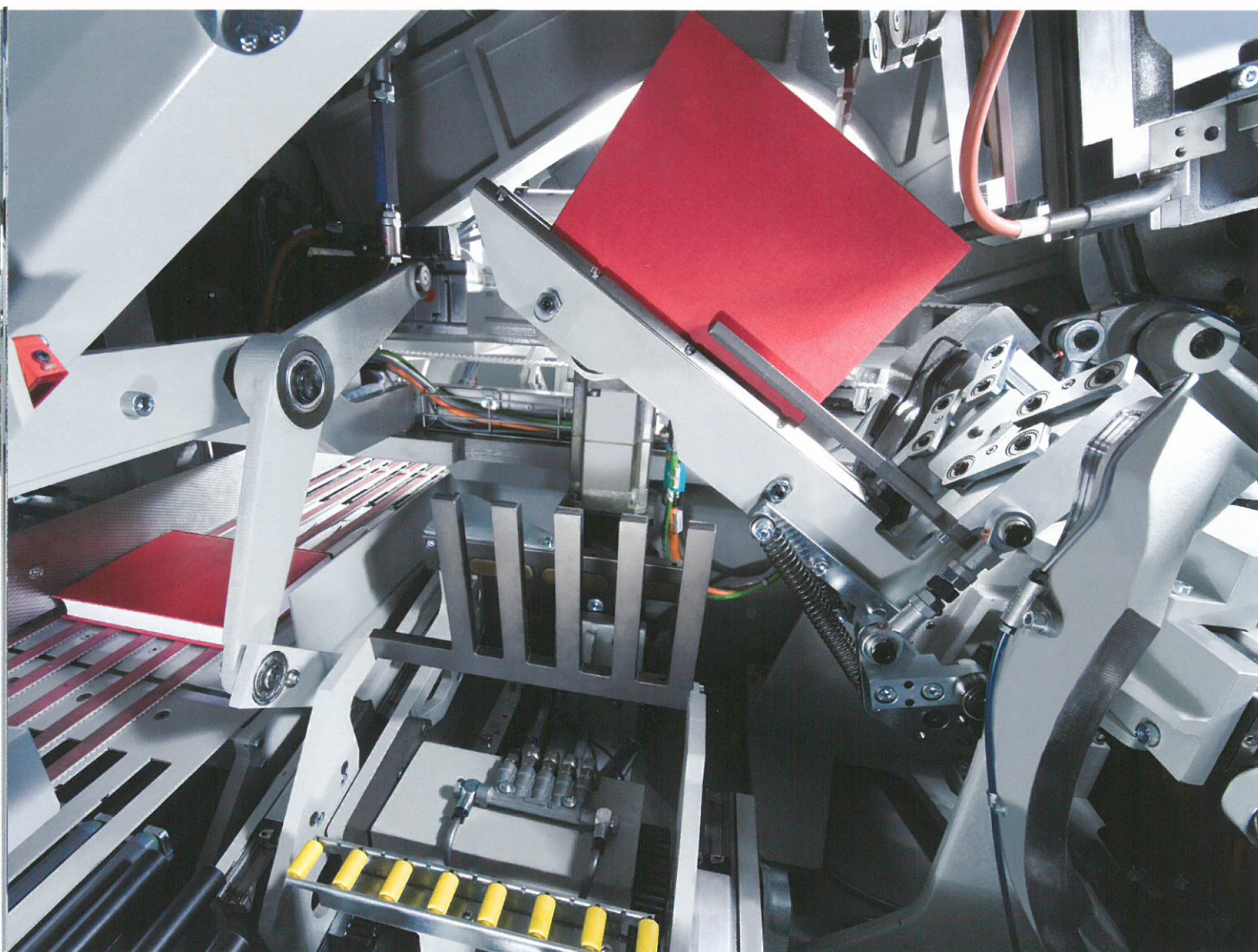
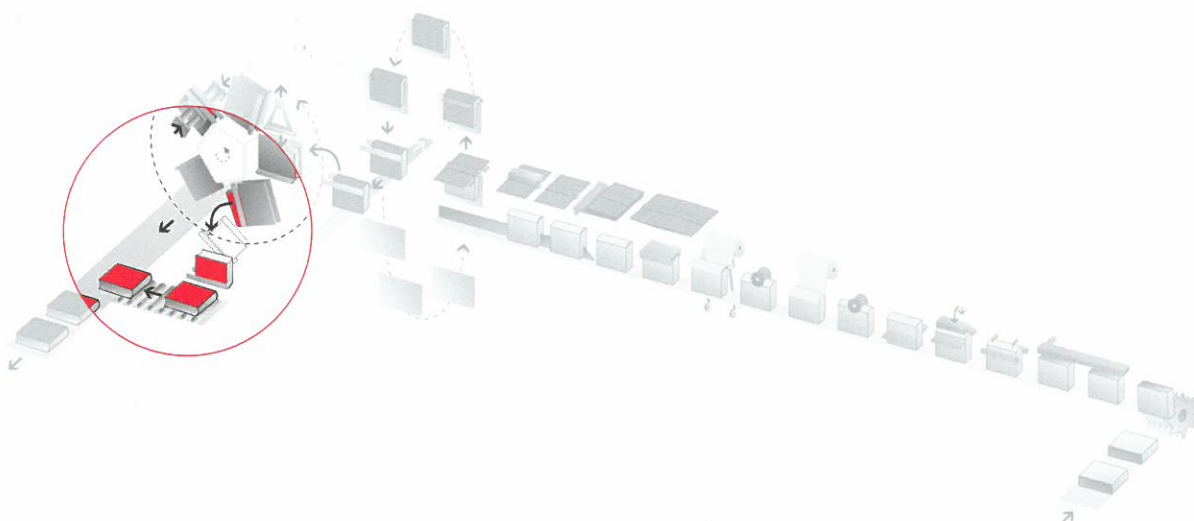
■ Delivery

The bound books are handled with extreme care during the delivery process. The book is unloaded gently from the pressure clamps and laid on its side, with the head in the direction of travel, by a series of grippers and clamps. A pusher, its cycle perfectly synchronised with the grippers, moves the book onto a crosswise belt. Once on the crosswise belt, the books move in a steady stream to the next process – stacking, packing, etc.

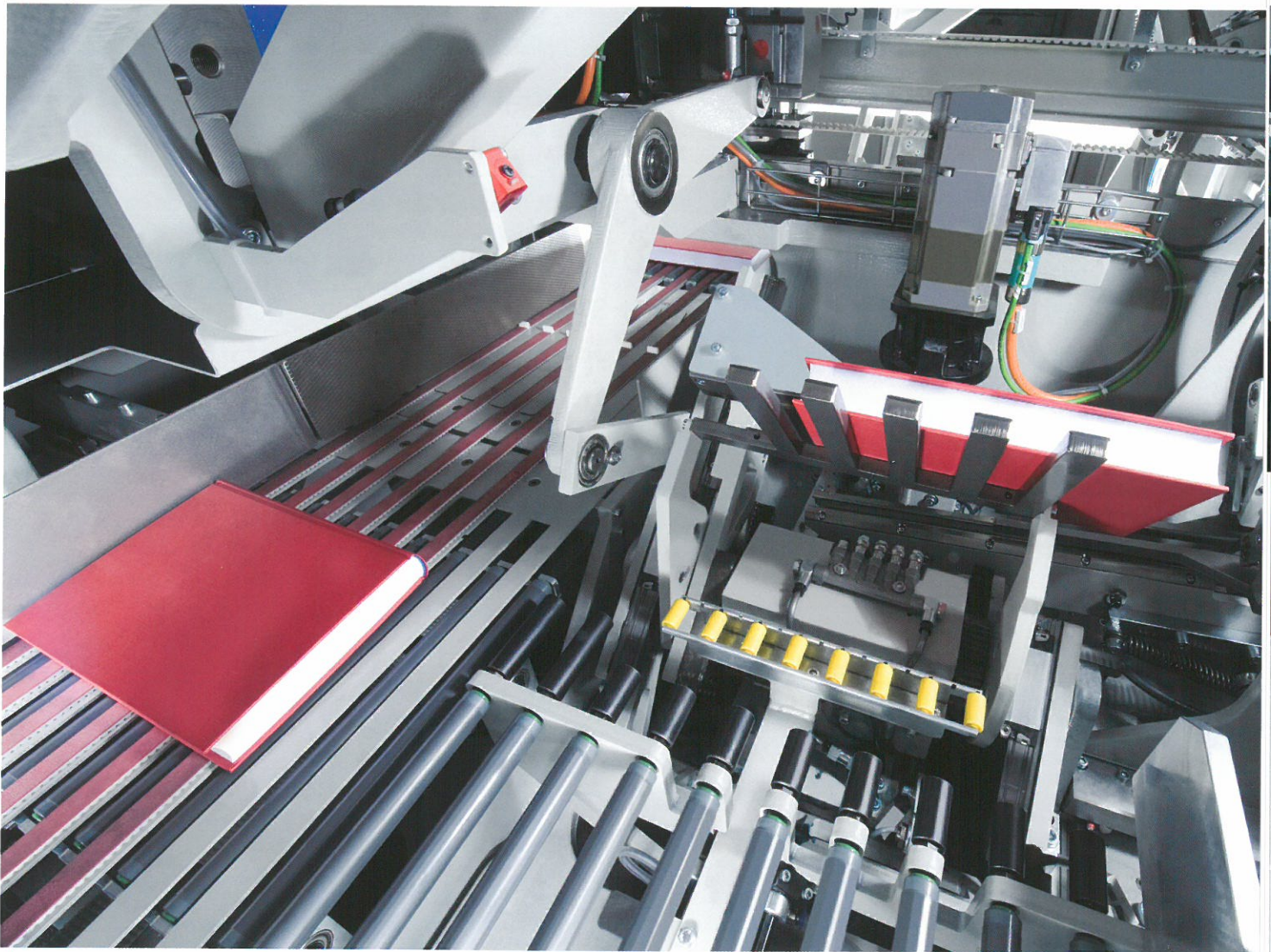
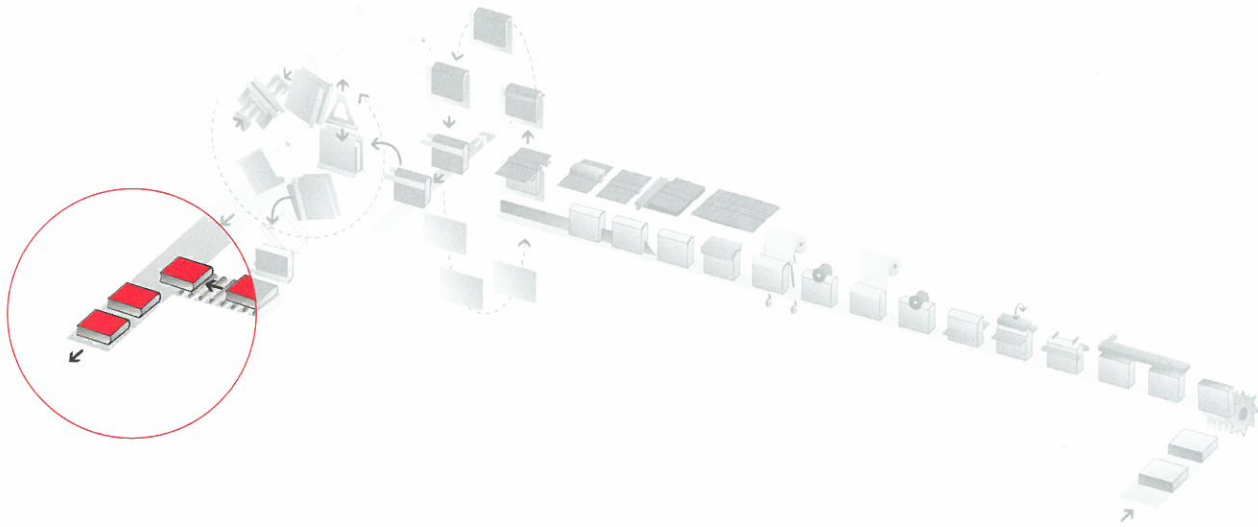


▲ Pressing

KOLBUS BF 530 | 70 cycles/min



▲ Delivery gripper

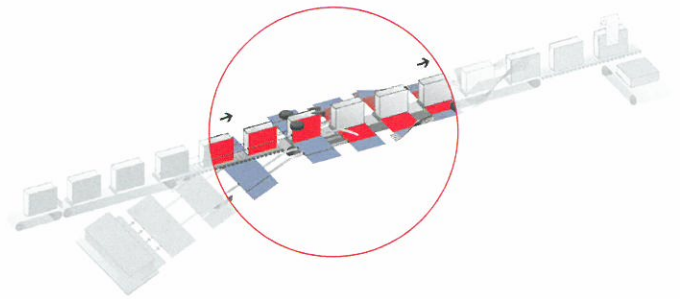
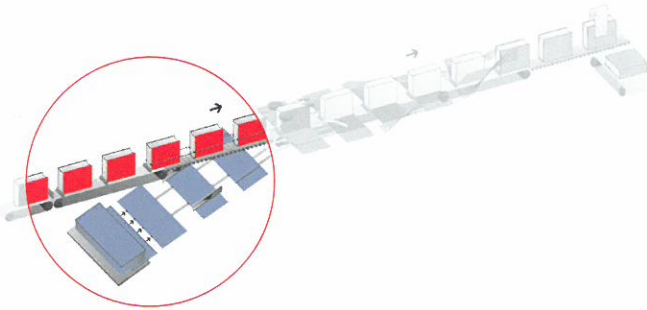


▲ Lay-down and handover to the delivery belt

Jacketing machine SU 651

Book jackets are among the most effective sales promoters. With their huge visual appeal, they are a successful communication tool. KOLBUS offers automated machines that put books into jackets neatly and cost-effectively. Mature technology makes the SU 651 a reliable and hardworking jacketing machine. It can be linked in a linear line-up with the BF 530. Alternatively, jacketing can be handled off the production line. For offline jacketing with manual feed, we offer an extended infeed belt. Books arrive in a steady flow from the upstream book finishing line. An indexing module in the SU 651 synchronises the speed of the books, so that they are transported into the jacketing machine singly at the correct speed.





▲ Jacket feeder – separation and infeed



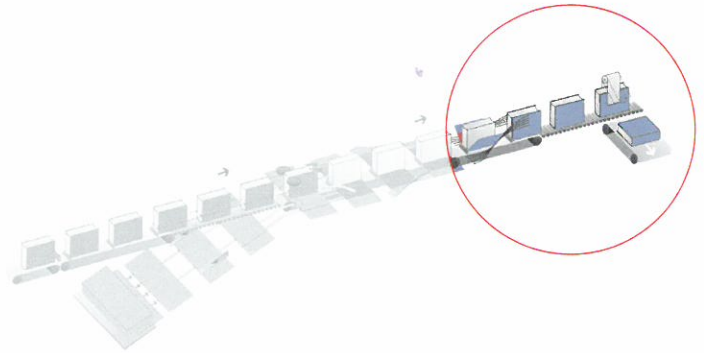
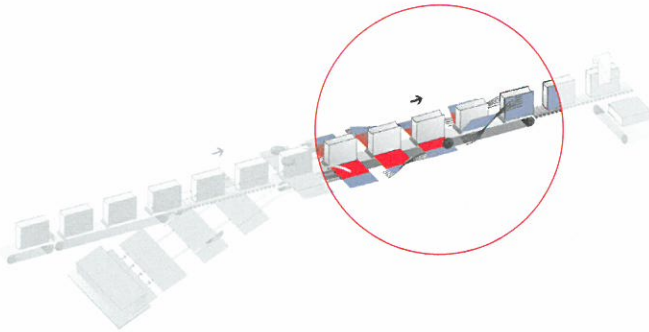
▲ Travelling scoring rails

■ Jacket feed and scoring

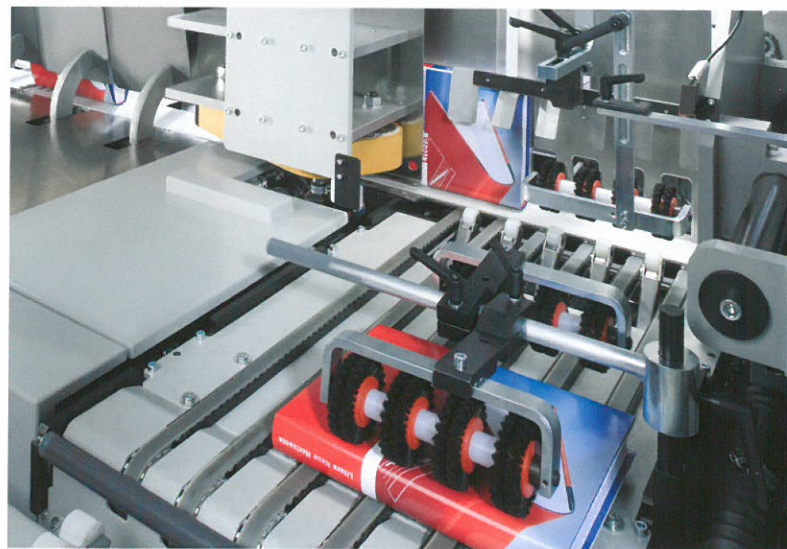
Jackets are fed to the machine automatically by a continuous feeder with a stack magazine. They are separated gently by a synchronised suction belt that takes the bottommost jacket from the stack.

Already paired up with the book and carefully aligned, the jackets are scored distinctly along the fold lines in a scoring station. This ensures that the jacket fits tightly round the book.

Before the book is placed on the jacket, an opening device separates the sides of the case from the book block and end-sheets. The book block is held upright, while the sides of the case are held at an angle in separate guide profiles. This method of transport avoids any negative impact on the book.



▲ Closing device with precision turn-in elements



▲ Book with well-fitting jacket

■ Flap turn-in station

In the next station, the jacket flaps are folded tightly over the edges of the case. Separately driven rolls support the precise orientation of the turned-in flaps.

A closing device, travelling with the book, closes the book with the turned-in jacket flaps. During transport, the case sides are supported over their entire length.

Depending on the machine configuration, the jacketed books are deposited, spine first, either right or left on the transport belt. All important adjustments are made using spindles and hand wheels from outside the guards, enabling adjustments to be made during running production. The presetting system, with digital position displays for each axis, ensures very short set-up times.