**Innovation meets tradition.**

**More efficient. More flexible. More performance.  
The next generation of nesting solutions from HOMAG.**

The demands on modern machines are large and extensive. On the one hand, they should be efficient and help save material and resources. On the other hand, they should provide increased performance and be highly flexible. These machines must fulfill a wide range of requirements and expectations.  
  
It is precisely these demands from the nesting market that HOMAG has responded to by launching a new generation of machines for nesting applications, where sustainability, flexibility and performance are highlights. The two new models, CENTATEQ N-210 and CENTATEQ N-510, will be presented to the public and launched to the market on November 15, 2021.

In the area of flexibility, 5-axis processing needs can be met, in addition to the classic nesting tasks. To be able to implement this flexibility, the maximum total height in the Z-direction on these new machines has been extended. This means material thicknesses of up to 260 mm can be processed within this generation of HOMAG nesting machines. The new generation of machines is available in both stand-alone and automated configurations and carries updated matrix table configurations to increase both performance and flexibility.

In addition to the table structure, the vacuum, air cushion concept, and material handling components have been rethought and further optimized. To optimize non-productive times and setup, the tool changing system has also been adapted. The machines were developed under the guiding principles of lower investment amounts for the customer, HOMAG quality standards, and reduced assembly times within our factories, resulting is greater availability for our customers.

**Grow with the HOMAG Group – 14 Automation concepts**

Performance requirements often change as our customers grow their businesses. After starting with the basic version, the machine can be upgraded to meet the current needs of the customer. In line with the motto "Growing with the HOMAG Group," lifting tables can be added for easier loading of material, automatic belt conveyors for pushing out finished parts, and even complete integrations in saw and storage-system combinations or with material handling robots.

**High Efficiency Production Through Automation**

High volume processing is also a focus within the new CENTATEQ N-210 and CENTATEQ N-510 programs. HOMAG offers a lifting table on the left-hand side and a belt conveyor on the right-hand side. The lifting table always moves to the desired height and the feeding of the panel onto the processing table is enabled automatically. Depending on the depth of the machine, this infeed device can consist of an increasing number of suction cups, which can be extended if when the panels to be processed carry a higher weight. A new feature is the integration of the infeed device into the machine housing. In addition to the advantages of protecting the components from dust and debris, this is also an absolute added value in terms of long-term reliability.

After completion of the machining operation, the finished nest is pushed out onto the belt conveyor and, at the same time, a new panel is pulled from the lifting table onto the machining table. New within this program is the ability to effectively handle left-to-right or right-to-left machine operation to better meet the workflow demands of our customers.

**Dynamic Shuttle Operation**

The well-known pendulum operation is extended using a separate vacuum supply and ventilation of the table sections. This highly efficient and seamless alternation between the left and right table sections is extended by "dynamic pendulum operation". Similar to our console table machines, the vacuum fields are assigned to the table sections and can be controlled individually and is not fixed. In addition, we have created the ability to dynamically control our air cushion function. This means that individual workpieces of different sizes and surface finishes can be processed in pendulum mode without any problems.

**Material Yield Utilization and Part Identification Drives Production**

Sustainability is also at the forefront of the utilization of these machines. The aim is to generate as little material waste as possible. Thus, the nests are optimized via intelligent software solutions in such a way that the available material can be optimally utilized. The intelliDivide Nesting solution, Cut Rite Nesting software solutions, and the Nesting Production Set provide support here.

To ensure that the parts are identified for secondary processing, such as edge banding, and for assembly after production, barcode labels can be utilized. These labels provide valuable information for moving parts through the production process. For example, the type of material, edge banding information, part size, order number and even part-related graphics and company logos can be added. The labels can be applied automatically on the lift table before processing, or they can be added manually by the machine operator at the end of the outfeed belt. Depending on the equipment level of the machine, HOMAG offers individual solutions here.

**Active Vacuum Solutions - New valve technology and machines optimized for dust extraction**

In the new generation of nesting machines from HOMAG, there are many different table sizes available based on specific needs and requirements. Independent of the table size, three configurations of the automated vacuum field layouts are offered: Classic, Advanced and Premium.

The Classic layout is the standard for our current nesting machines. The field sizes are designed in such a way that the underlying vacuum zones can be utilized to concentrate vacuum pressure to any number of common panel sizes. Advanced layout creates a more balanced machine. The vacuum field sizes are engineered at both the front and back of the machine to allow for flexible fixturing of a wide range of panel sizes, as well as smaller pre-formatted parts. Premium consists of many small, symmetrical vacuum fields that are controlled individually. With this variant, in the future HOMAG will allow the ability to activate only one field, for even more flexibility and efficiency. New valve technology has been installed in the table for this purpose. It generates the vacuum output required for nesting workpieces and precisely maintains that vacuum pressure throughout the nesting process, so that no excess energy is required.

The matrix table consists of a “raised island” and groove pattern that has a consistent grid dimension to provider for optimal vacuum flow. The transition between the individual matrix table sections has been re-designed so that this transition point is always constant and suction cups can be positioned across these segments without restriction. This is very relevant, especially for 5-axis machining!

As important as fixturing parts to the machine table is during production, the subsequent removal of the processed materials, both the nested parts and the waste, is just as important. The re-designed extraction and ejection device has a modular design and is integrated into the machine housing. Combining processes such as ejecting the nest and cleaning the spoil board within a shared machine cycle, reduces non-productive time in the plant. The extraction unit has been also been studied and optimized as part of a CFD flow simulation. The diameter of the machines dust ports and the arrangement of the integrated compressed air nozzles leads to an optimum dust collection result. The required amount of dust collection volume is managed exactly to the point.

**More Options for Tool Changers and Drilling Gears**

For short changeover times, the 8-place tool changer riding along the X-axis of the machine will often be selected as standard. Depending on the variety of machining and application requirements of the customer, versions can also be selected in which 14 or 22 tools can be accommodated. The previous benchmark for tool changing times of the HOMAG nesting machines have been significantly reduced and our chip-to-chip tool change times improved. Within some of the automated configurations, the changing of the tools can also be carried out in parallel with the loading of panels, saving additional time. For those looking for advanced tool changing technology and speed, an X/Y ride-along tool changer is available that can also be paired with a second tool changer provide a combination of speed and flexibility.

The new nesting series from HOMAG offers a wide selection of drilling gears to meet the demanding drilling requirements of today’s nested based manufacturer. Up to 21 different drilling gear units are available. Various combinations of vertical and horizontal drilling, as well as grooving, can be handled by these units without the machine requiring a tool change. HOMAG’s patented quick change system for drill bit changes remains available.

**5-axis Processing on the CENTATEQ N-510 – bringing added value to the application!**

The proven HOMAG DRIVE5CS 5-axis head is now available to the CENTATEQ N-510 series, bringing extra versatility to our customers. In addition to traditional nesting, this series can also be used as a traditional machining center. Parts can be elevated, referenced, and machined on five sides.

In addition to typical nesting operations including part sizing, shaping and vertical drilling, additional processes such as horizontal drilling for dowels, miters can be created with a 350 mm saw blade and solid wood components such as stair stringers and door components can be machined without challenge. For some of these processes, parts are placed on the suction cups, which are attached to the grid table by means of a vacuum. When pods are utilized on a nesting machine, they are supported by HOMAG's high-precision reference fence and reference pins systems, which can be set to different levels depending on the application.

**Sustainability**

In addition to the machines being configured to meet the technical and functional applications for the customer, these machines are also engineered with a high degree of focus on conserving resources and achieve sustainability. Times for tool changing have been shortened. The extraction of dust and the cleaning of the spoil board has been optimized. The creation and optimization of the nests for processing is efficient, increasing yield and decreasing waste. Engineering measures have also been employed to optimize the use of electricity, compressed air, and dust collection. Where possible, machine movements and operating sequences have been combined and share to increase the service life of machine components.

HOMAG has truly redefined nesting with the new CENTATEQ N-210 and CENTATEQ N-510 Series CNC machines. Clever revisions, creative engineering, modular machine executions, flexible workflow configurations, active vacuum solutions, dynamic pendulum operation, advanced tool changing and drilling gear configurations, the addition of 5-axis processing, and a focus on global resource management and sustainability significantly increase the value position of these machines for our customers.

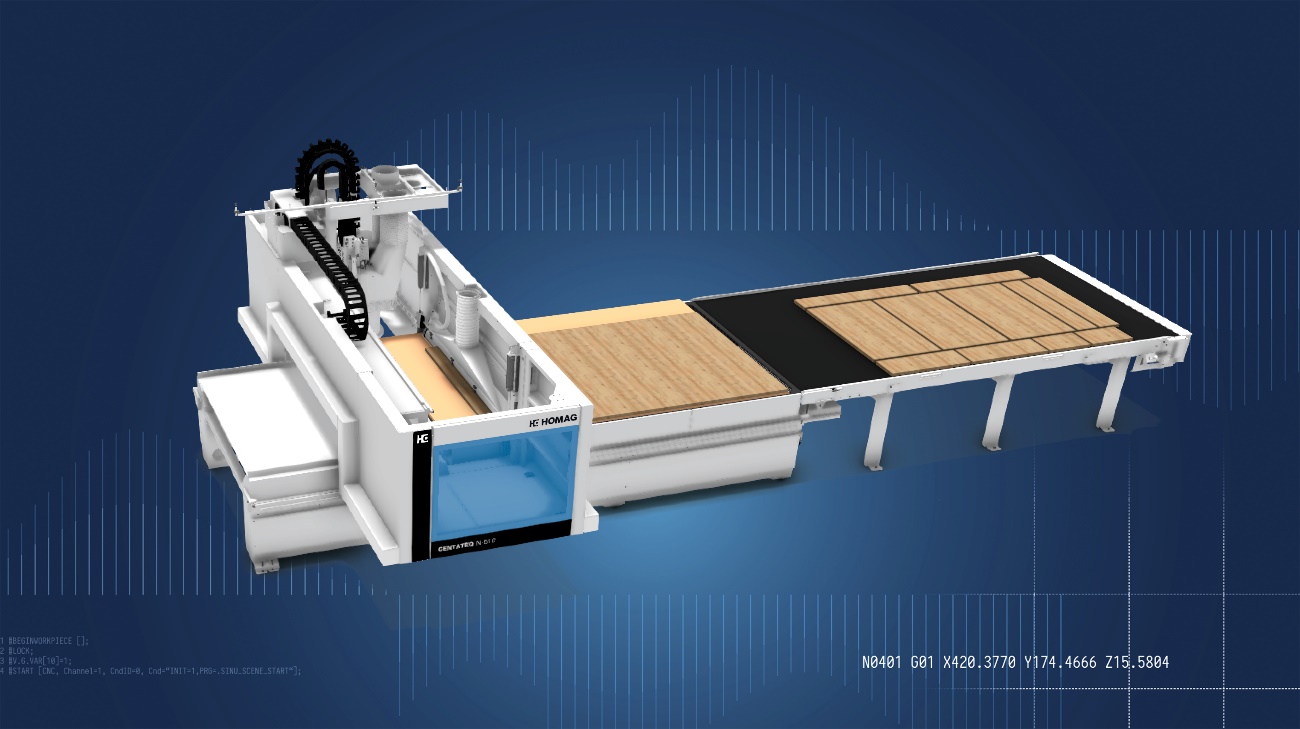


Image 1: CENTATEQ N-510 with infeed and outfeed device and belt conveyor for   
automatic push-off.

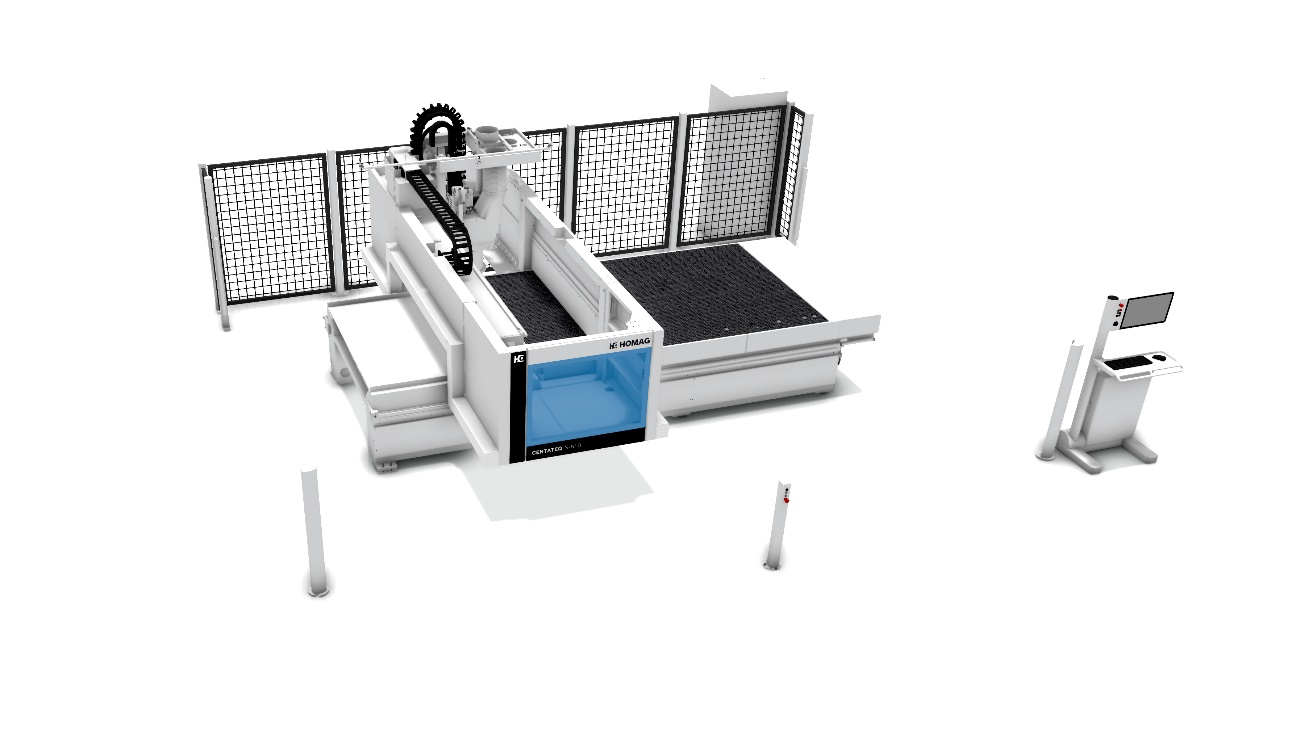


Image 2: CENTATEQ N-510 in the basic version with pull-in and push-out device.

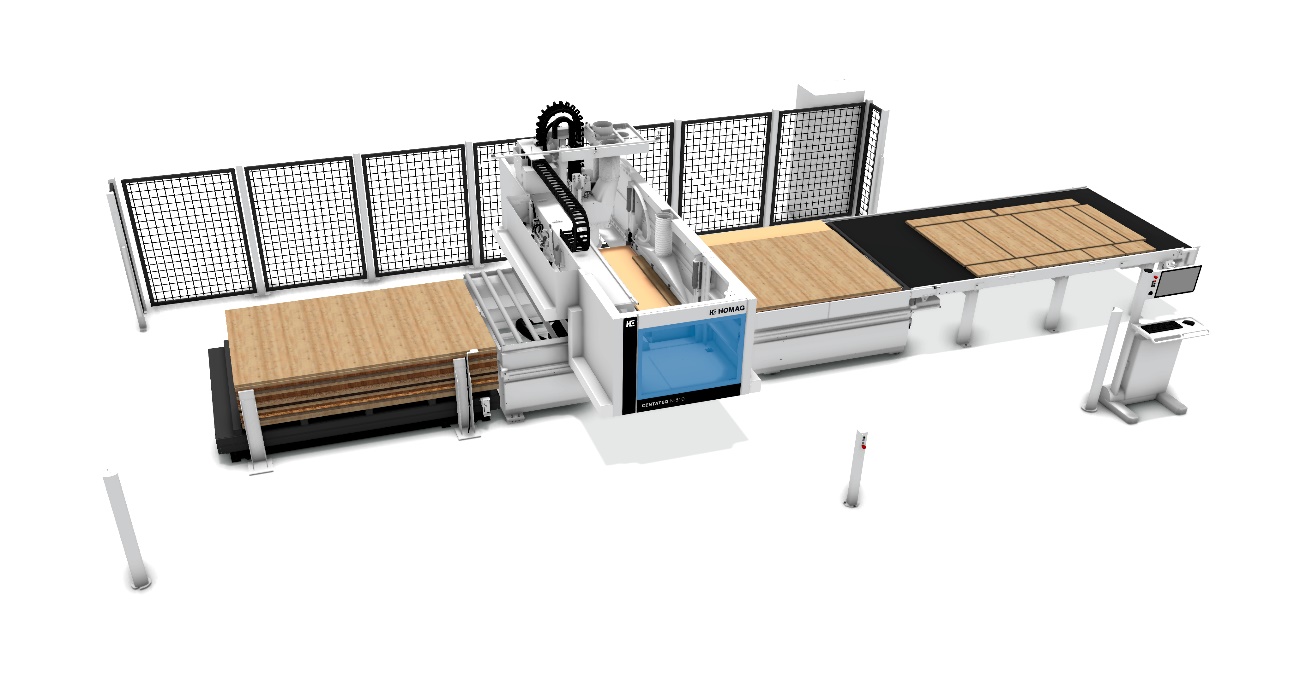
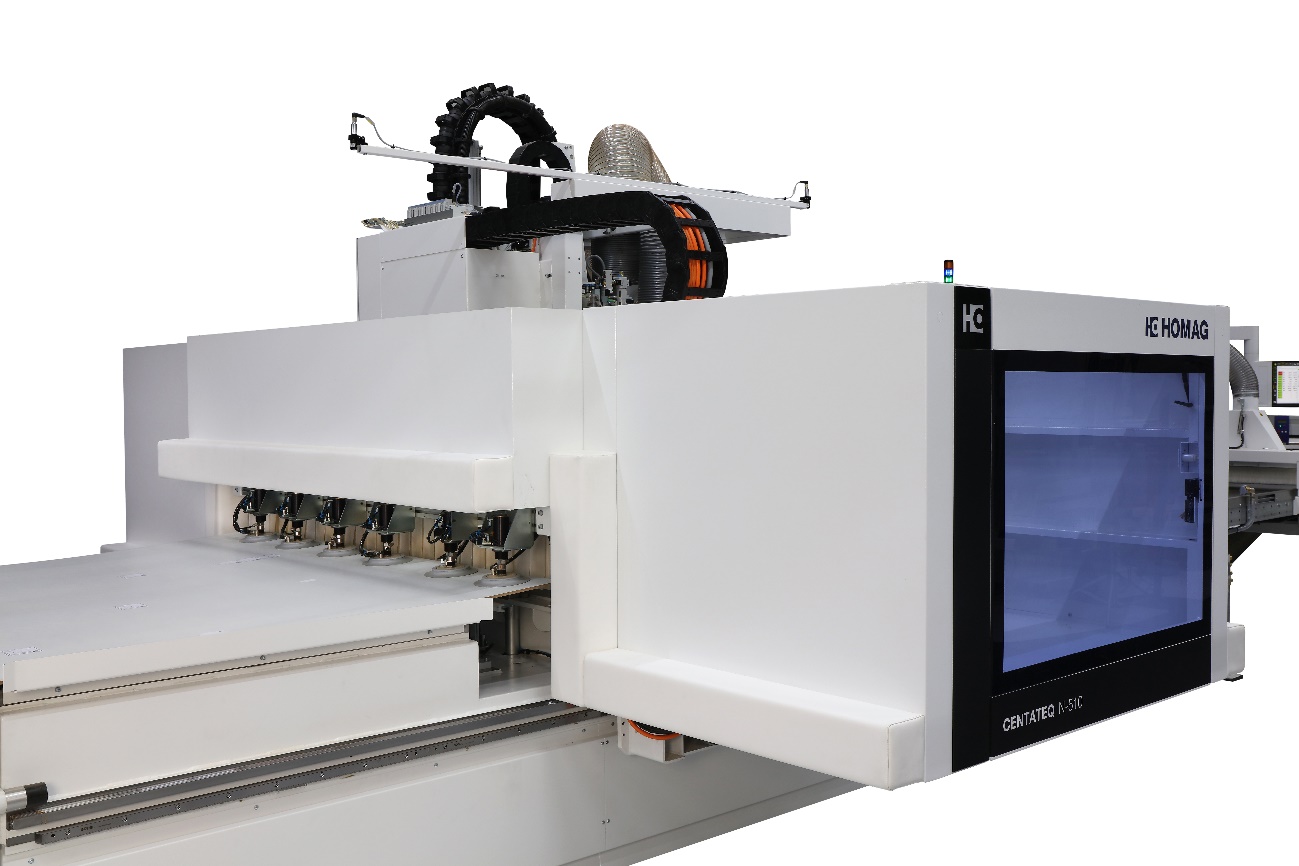


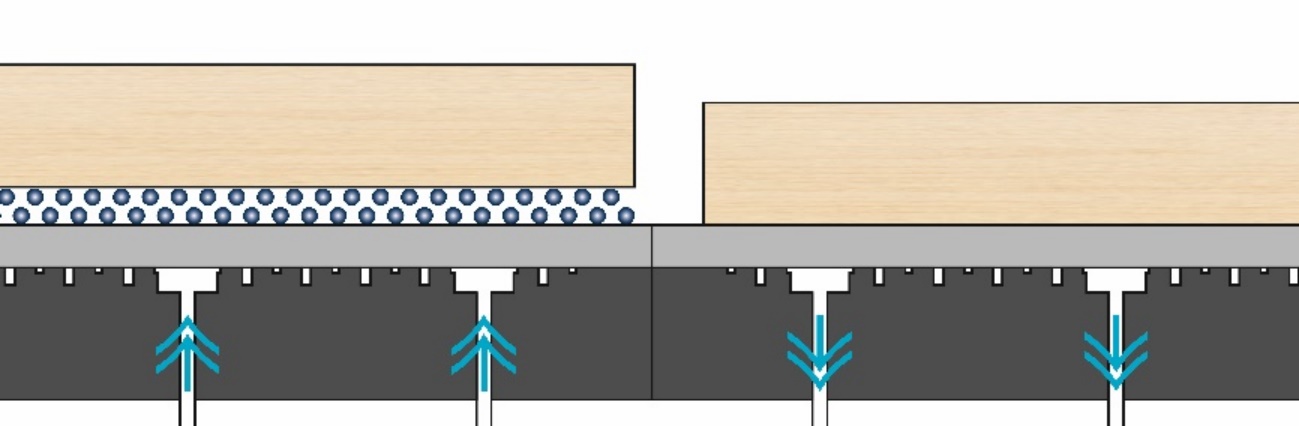
Image 3: CENTATEQ N-510 with lifting table for automatic feeding and belt conveyor   
for automatic pushing off.



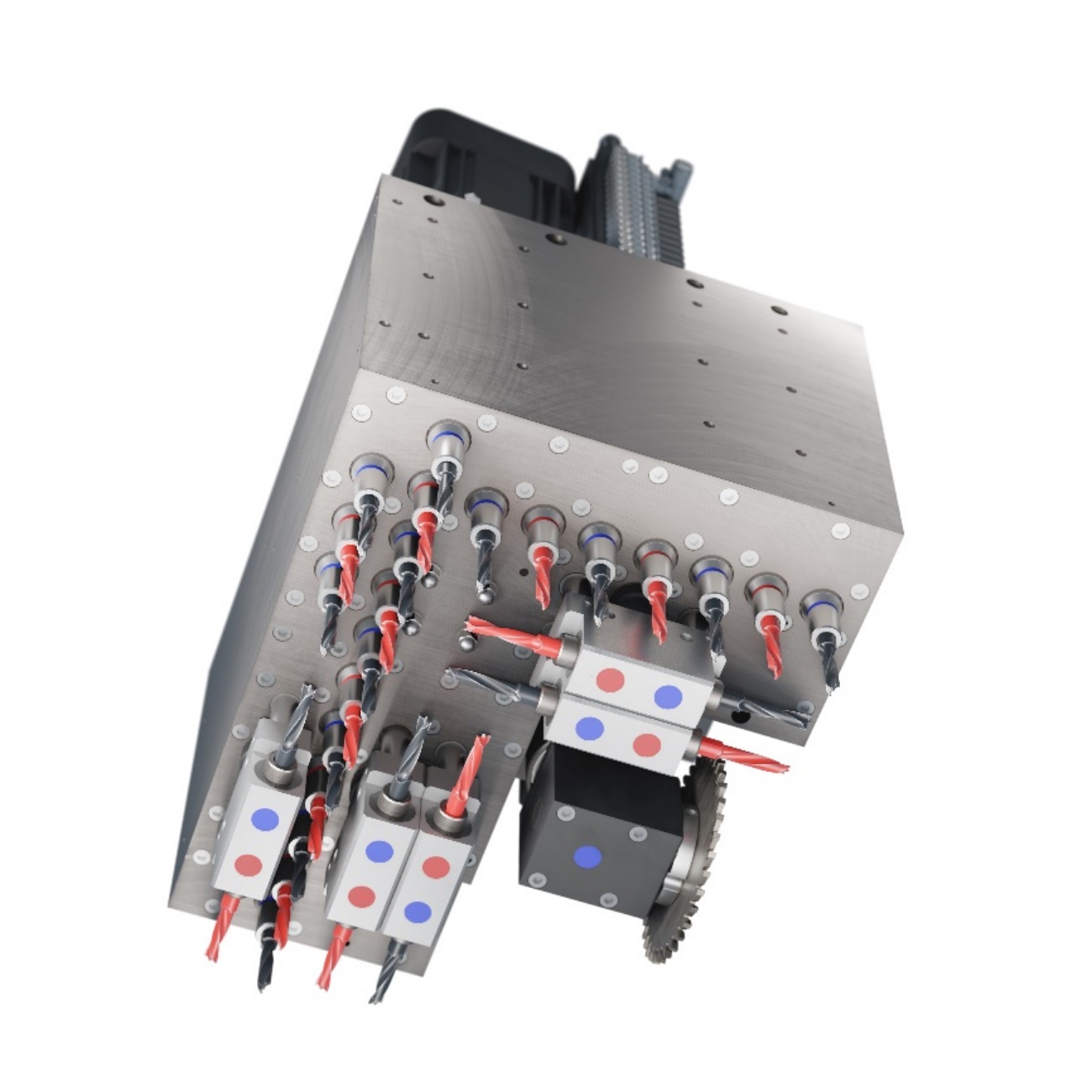
**Image 4:** The integrated infeed device simplifies material handling during automatic positioning of the blank panel while at the same time protecting it from dust.



**Image 5:** Automatic labeling at the infeed guarantees flowing process sequences. The labels provide valuable information for production, such as the material type, decors, and of course the commission. Simple installation via plug & play.



**Picture 6:** Due to the selectable and deselectable table field assignment, the vacuum or, more recently, the extension of the air cushion table function is controlled directly to the required area and acts where it is needed.



**Image 7:** 21 different drilling gears are available in various versions consisting of vertical and horizontal spindles and grooving saws.