HOMAG dividing plants for laminate flooring directly networked with short-cycle press and strip storage system

There have traditionally been two different approaches to the question of dividing coated raw panels. The first entails entering laminate panels into intermediate storage after coating as complete panels, and removing them after a conditioning period of at least 1 week for finish profiling on a combined dividing and profiling plant followed by packaging. This production concept is certainly among the most widespread methods currently used in the field of laminate flooring production. Because it still allows free scope for different formats, this method eliminates the need for complex storage management systems. However, the benefit offered by the greater degree of freedom in choosing formats comes at a price: the conditioning period required is considerably longer, which in turn compromises response times following the receipt of customer orders.
Another benefit of this method has traditionally also been that the planks were individually gauged, where applicable taking into consideration paper growth, individually aligned and divided. This process was previously not possible to this degree of precision and flexibility using the alternative method described below.

The second option is for directly linked division of raw panels immediately downstream from the short-cycle press. The divided but as yet unprofiled planks are transported into a strip storage system and after a conditioning period of at least 3 days, then fed into a separate profiling and packaging line.
The customary procedure with the systems available to date was to initially rip cut the planks and collect them into stacks – largely for performance-related reasons – for subsequent cross cutting using a pressure beam

saw.
The drawback of this method in respect of the cross-cutting process was that the stack formation did not permit the decor-precise alignment of individual planks. An alternative method entails driving the longitudinally divided strips against separate stops positioned as required by individual cameras, and then transporting the complete layer of planks through the cross-cutting saw by means of vacuum gantries. The drawback of this method once again is that it entails higher tolerances.

However, given the ever more widespread use of system decor technologies, synchronous pores embossing and so on, the problem of increased tolerances has evolved to become a major drawback.
At HOMAG, the trend towards ever smaller batch sizes is also seen as an issue demanding the use of flexible systems. **(Fig. 1)**

HOMAG has squared up to challenge and come up with a solution, implementing not one but two systems, both of them fully automatic and offering a high degree of flexibility.
One of the lines covers the spectrum range from narrow planks through to standard formats, i.e. from 90 mm to 220 mm in width and 450 mm to 1,400 mm in length. The other line covers the range from standard to multiple tile formats, in other words 195 mm - 400 mm in width and 1,200 mm to 1,400 mm in length.
Generally speaking, however, depending on the requirement profile HOMAG AG is able to offer 6 different basic rip saws and 2 basic cross-cutting saws for this application.
The output of both the plants implemented using this concept is 10 cycles. Both are directly linked to the respective upstream short-cycle press and the fully automatic downstream storage system. An additional feature of the system is that the panels are held together during the entire process, monitored by the data processing system and then stacked in the same

sequence. This allows panel-precise traceability of which panel has been produced with which characteristics at any time using a higher-level data processing system.
Alignment takes place using a CCD camera system which additionally takes account of decor growth – an important factor when dealing with system decors. Positioning of the individual sawing units is performed using NC axes in the rip saw, while each individual plank in the cross-cutting system can be gauged using a camera system, followed by highly dynamic alignment and decor-dependent cross-cutting.
Another decisive benefit is that the cross-cutting saw is based on the transport technology used by the tried and tested HOMAG double-end tenoner, guaranteeing a high standard of quality and dimensional stability. **(Fig. 2 / Fig. 3)**

The stacking system was also supplied from within the HOMAG Group, from Group member BARGSTEDT. The individual planks are stacked here onto load carriers following accurate mechanical alignment – allowing precisely aligned stacks to be entered into the storage system. **(Fig. 4 / Fig. 5)**

The profiling lines are also automatically fed from the stack storage system. **(Fig. 6)**

Due to the high plant output of 200 planks per minute coupled with small American raw panel formats, meaning a smaller number of strips per panel, angular transfer was implemented on two levels. The layer output corresponds to 25 layers/min., allowing for instance profiling outputs of 10 x 25 = 250 individual planks per minute when working with larger raw panel formats, for instance European formats of 2,100 x 2,600 mm with 10 strips across the width as standard.
Both in terms of precision and also format flexibility coupled with high plant

output, this concept represents another milestone in the efficient production of laminate flooring.

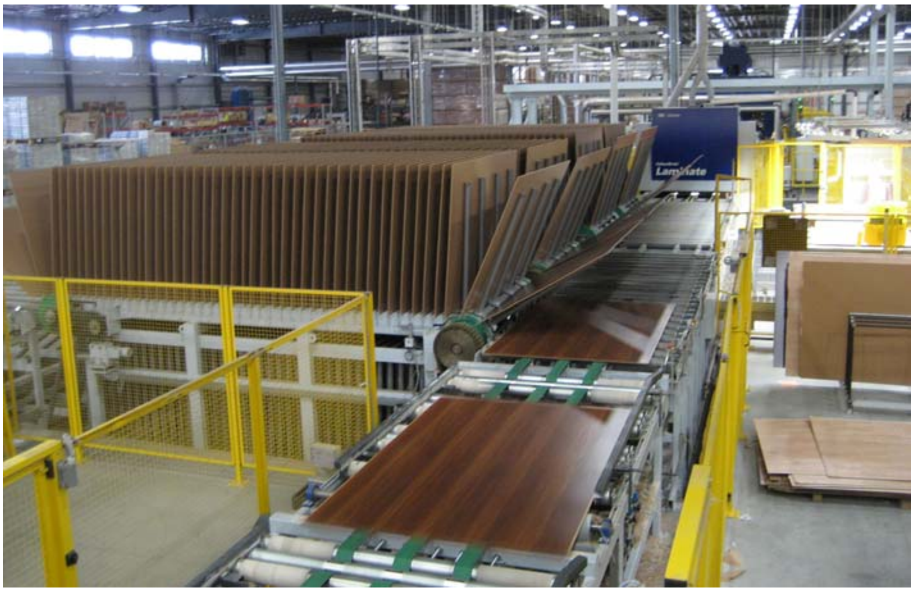

Fig. 1:

Upstream short-cycle press line, directly linked to the downstream HOMAG dividing and stacking plant

Fig. 2:

HOMAG CCD alignment station with flexible rip saw

Fig. 3:

Outfeed of the rip saw, angular transfer with downstream flexible cross-cutting saw

Fig. 4:

Stack transfer from the transfer platform to the strip storage system (SHS)

Fig. 5:

Strip storage system (SHS)

Fig. 6:

BARGSTEDT strip alignment and stacking onto load carriers

Fig. 7:

BARGSTEDT strip feed into the profiling system with two-storey angular transfer

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