Boundless possibilities

HOMAG Group supplies automatic panel storage and part cutting system for Dutch interior fittings specialist Keijsers

Keijsers Interior Projects, one of Holland's biggest interior fittings specialists ("the ultimate co-creator"), recently took the decision to invest in a fully automatic panel cutting plant from the HOMAG Group. In close cooperation with the HOMAG Group sales partner in Holland Klingelnberg-Klauss and Keijsers, an integrated concept was developed, produced, supplied and assembled which takes care of the entire storage, labelling and panel cutting stages through to processing - and all over a project period of just 15 months.

Keijsers is now in a position to centrally manage and make available the entire range of different panel materials for initial processing to produce the rectangular and free-form workpieces which it uses to produce high-grade interior fittings. The HOMAG Group companies involved in this ambitious project - BARGSTEDT, HOLZMA and HOMAG – supplied all the system components: BARGSTEDT delivered the automatic area storage system TLF 410 with storage stations and loading gantry for the saw, fitted with roller conveyors for removal from storage and waste piece return transport. HOLZMA was responsible for providing the Logopac labelling station for the printing and application of bar code labels and also the panel dividing saw HPP 380. And finally HOMAG supplied the CNC router BOF 612 for nesting and the feeding gantry with large-area vacuum gripping system and belt table.

First step: entry into storage...

The individual components were coordinated and positioned in agreement with the logistical specification for the most efficient possible process sequence. Supplied books of large-format panels (half formats) are deposited along the back of the storage system using fork lifts at nine different storage stations. When work begins in the morning, an employee prepares the newly delivered books of panels for their predetermined future use. He enters the data provided on the shipping documents at the control terminal of the storage system manually or electronically with the aid of a scanner, and starts the process of entering the parts into storage.

The top and dummy boards must be manually communicated to the storage control system. These boards are initially entered into storage alongside the panels in order to free up the storage stations. These boards are removed from storage in response to a manual request at a later juncture. For processing, individual panels are deposited either using the storage system crane or the vacuum conveying system individually on the different stacking locations in the storage system or directly positioned on the infeed conveyor lines to the labelling stations from where they are further processed.

... then removal

For removal from storage, all panels are taken out of the BARGSTEDT storage system and deposited individually using the storage crane and vacuum conveying unit on the two parallel infeed conveyor lines in front of the labelling station. Two dedicated deposit positions are provided, one for cutting to size on the HOLZMA panel dividing saw and one for nesting with the HOMAG CNC router. Inside the labelling station, the panels are traversed to position 0/0 by the BARGSTEDT roller conveyors. This eliminates the need for referencing the labeller. As the labeller processes

left-hand and right-hand panels alternately, panel changeover times are significantly reduced. At the end of the labelling process, the panels exit the system over the roller conveyors, either travelling straight on for processing by the router or diverted via an angular transfer to the panel dividing saw.

The panels destined for processing by the HOLZMA panel dividing saw are transported via an angular transfer under a BARGSTEDT loading gantry. After being aligned, they are engaged by a rotatable suction beam and deposited in books either individually or in sequence on the pre-stacking table of the panel dividing saw. Once all the panels of a cutting plan have been deposited, the programmed sawing cycle begins. Cut workpieces are manually destacked. Panel waste pieces are manually transferred to a BARGSTEDT return transport line and sent back to the panel store.

Panels requested individually by the storage control system which are not labelled and are not intended for processing by the HOLZMA panel dividing saw or the HOMAG CNC router are transported straight on over the angular transfer to a manual removal station. Both processing machines allow workpieces to be manually positioned and processed from the front.

All panels destined for processing on the CNC router are transported as far as the HOMAG loading gantry. From the defined 0/0 end position – front left seen from the operator’s viewpoint – the individual panels are engaged with the large-area vacuum gripping system and deposited on whichever of the two router work tables is currently free. The machine’s vacuum clamping system ensures secure fixture of the panels. The machine then begins to run through the processing program. The finish processed panels / nests are then engaged by the large-area vacuum gripping system vacuum in a single stroke from the loading gantry and

deposited on a belt table, from which they are cleared manually.

Separate treatment for wearing panels

The wearing panels required for nesting are prepared in a separate work process on the HOMAG CNC router. Like other panels, they are returned to the BARGSTEDT storage system by fork lift and requested again as required by means of a manual storage removal order to the storage control system. Here, the machine operator must pay attention to the plant-specific forward flow or ensure the prompt supply of new wearing panels. Spent wearing panels are manually removed and disposed of, and new ones are also manually fastened on the clamping tables.

Plant control using internally developed software

BARGSTEDT controls all the transport sections upstream and downstream from the labelling process by means of its own internally developed software wood**Trans**. For withdrawal from storage to the HOLZMA saw or to the HOMAG CNC router, the storage system informs the software which panels are required. wood**Trans** transfers the panel data with book management to the HOLZMA Cut Rite program and tracks the panels on the different transport sections. If there is no cutting plan or optimization routine available in Cut Rite, this is requested at the relevant manual removal station.

Should a book of panels on the HOLZMA line not be complete for any reason, an error message is read out, and manual intervention by the operator is required. In the case of books of panels, the last part always remains positioned under the labeller so that this part can be labelled in case there is a panel missing. This process can be manually executed by

the operator. If the printing system transmits an “error” signal, the part is transported to the relevant manual removal station.

Labelling as a central process tool

Before the large-format panels are divided into rectangular or freeform workpieces, a label is applied to the individual panels removed from storage. Labelling is performed in compliance with the relevant cutting / nesting plan, with the relevant number of labels applied in the correct position and alignment.
The processing sequence in detail:

1. Label request for the (top-most) panel of a particular station (with plant-specific information such as route/plan, MPR file).
2. The “labelling logic” requests the label positions / data for the panel from the relevant system (HOLZMA or HOMAG).
3. The executing system makes available the position data.
4. The “labelling logic” prepares the data if necessary and transmits it to the actual printing system (in this case Logopak).
5. The printing system communicates via I/Os with BARGSTEDT storage system (roller conveyor/transport section on which the panel is located) and labels the panel.
6. The printing system signals a successful/unsuccessful printing process to the labelling program, which passes this information on to wood**Trans**.
7. This is followed by further transportation and further processing of the panel as described above.

Summary

The plant described above provided Keijsers with the ultra-modern, flexible automatic panel storage and part cutting system it needed to provide sustainable, future-proof support for the complex tasks demanded of a competent firm of interior fittings experts. By supplying this bespoke, highly requirement-specific integral solution, HOMAG Engineering has provided further impressive evidence of its competence in plant and system engineering for the woodworking industry, with another showcase example of successful system integration using machines and components from different HOMAG Group members.

Keijsers Interior Projects

Keijsers Interior Projects looks back on a hundred years of corporate history, and is one of Holland's biggest interior fittings firms. This successful company has completed projects for customers at home and abroad in market segments ranging from retail to museums, offices and the service industry. Keijsers approaches every project in close cooperation with customers, building specialists, interior architects and designers. This collaborative approach forms the core of the Keijsers Interior Projects ethos as "the ultimate co-creator" in respect of quality, professionalism, commitment and outstanding service.

Every project is processed and completed by a team specialized in the relevant market segment. As a rule, a team comprises a project manager, costing expert, planning engineer, and qualified joiners alongside trainee craftsmen. In this way, Keijsers is able to concentrate specific technical expertise and experience within every market segment. The team members are selected to complement each others' skills, and to reinforce the individual experience and expertise of the other members to best advantage.

The project leader acts as central contact for all those involved. He is in direct contact with the customer's project management and designer, and works with them to produce functional solutions and technically feasible details. He is also responsible for adherence to deadlines, acceptance of quality products and the financial aspects of the project.

The HOMAG Group

HOMAG Group AG is the world's leading system partner in the field of woodworking, and as a global player is represented in all the world's significant markets. With a workforce of over 5,000, 14 producing locations in Europe, Asia and America, 20 of its own sales and servicing companies and over 60 sales partners worldwide, the Group combines a unique pool of expertise with an outstanding product and services spectrum under a single umbrella.

Each of the Group's member companies concentrates its strengths on a specific segment of the process chain, and all of them are among the technological and market leaders in their respective fields. The locations are closely linked, with networked structures and in-depth cooperation ensuring that the machines and plants supplied by the individual manufacturers complement each other to create successful system solutions.

Fig. 1:
The back of the BARGSTEDT storage system showing two 3-bay storage stations from a total of nine.

Fig. 2:
BARGSTEDT area storage system TLF 410 with storage crane and outfeed roller conveyor to the labelling station

Fig. 3:
Return conveyor from the HOLZMA panel dividing saw back to the storage system

Fig. 4:
HOMAG BOF 612 nesting cell with two independent work tables for processing pre-labelled large-format panels

Fig. 5:
Operator in front of the nesting machine with HOMAG feeder TBP 370

For more information, contact

HOMAG Holzbearbeitungssysteme AG
Homagstraße 3 – 5
72296 SCHOPFLOCH
GERMANY
http://www.homag.de

Alexander Prokisch
Head of Marketing & PR PRACTIVE
Tel. +49 7443 13-3122
Fax +49 7443 13-8-3122
alexander.prokisch@homag.de

Author:

Ulrich Schmidtlein
Project Manager HOMAG Engineering
Tel. +49 7443 13-2482
ulrich.schmidtlein@homag.de