

## "Shaping the future with modern technology"

### **Kitchens of distinction**

Since 1963, the Brazilian firm Kitchens has been showing the South American market what it means to manufacture luxury furniture aspiring to the very highest standards. As a market leader in both qualitative and technological terms in Brazil, Kitchens took the decision to change a key aspect of its production strategy. The challenge: To convert what had been a week-based order processing schedule over to a day-by-day production cycle. The first step undertaken by the company towards this goal back in 2008 was to invest in a new production plant and supplement its existing plant concepts from the HOMAG Group by the addition of a new high-tech plant.

Since the start of production in 2009, Kitchens has been producing using a new fully automatically networked production line from the HOMAG Group – exclusively just-in-time working to individual customer order.

A workforce of around 300 works in the Kitchens state-of-the-art main plant. While it used to produce exclusively fitted kitchens, the current product range also encompasses bathroom, living room and bedroom furniture. All the furniture is individually planned and produced and then installed on the end customer's premises. As well as producing furniture to the highest possible standards of functionality and design, Kitchens also arranges financing for the set-up, delivery and installation process and also offers a post delivery support service where required. Both sales and product advisory services are performed in 18 of the company's own furniture outlets distributed across the whole of Brazil.

### **Software drives innovation**

The furniture outlets provide the parent plant with all the order data using electronic means. The product data is then converted and made available to

the machines, including programmed macros for the individual units.

The entire data transfer implemented by the company Schuler takes place on an electronic basis. In some cases, the furniture outlets were using existing software from other manufacturers. These programs were simply integrated into the software architecture.

### **Kitchens production gets a "new heart"**

The corporate philosophy formed the focus of planning work for the new plant. Kitchen embraced the concept of "special requests are standard" as an underlying principle of its work. The concept of 100% just-in-time production without intermediate storage also became a fundamental building block of its philosophy. To prevent the need for unnecessary or additional data adjustments, the new plant had to be integrated seamlessly into the existing logistical set-up. Machines and plants which already existed (edging, drilling and kitchen front lines as well as various individual machines) originated almost exclusively from the HOMAG Group. This approach meant that the existing production facilities were given a brand new "heart" by the HOMAG Engineering team.

### **Up to 3,000 parts in two shifts**

The final result was an individual project solution adjusted precisely to these requirements – a complex puzzle made up of diverse future-oriented technologies. With this new batch size 1 plant from the HOMAG Group, a production plant with fully automated networking and 100% part visualization was born. Its average output is an amazing 2,500 to 3,000 parts in two shifts.

The plant comprises the following individual components:

- Single-axis storage system (BS)
- Saw (angular plant CombiLine / HZ)
- Gantry offset station (BS)
- Barcode printer (BS)

- Angular transfer (BS)
- Buffer system (BS)
- Double angular transfer (BS)
- Edge banding machine 1 (HO)
- Double angular transfer (HO)
- Edge banding machine 2 (HO)
- Chain lift buffer (BS)
- Porcupine buffer (BS)
- Diverting station (BS)

Kitchens uses this plant to produce carcass components, fronts, plinths, tops and back panels for fitted kitchens, living room and bedroom furniture. The essential data structure comprises a production line control system, data transfer from the ERP system and a barcode control with printer link.

### **Step by step to the production of luxury furniture**

Tracking a single workpiece on its way through the high-tech plant, the journey begins at four stacking locations under the BARGSTEDT single-axis plane storage system. Here, semi-formatted raw panel stacks are placed ready for processing. Material can also be transported to the saw infeed directly using a fork lift. The stack is "read in" using a hand-held scanner or entered at the operating terminal. This is followed by processing in a rip cutting and crosscutting saw which has been equipped in the rip cutting section with a trimming tool.

This HOLZMA innovation is able to create different widths within a single continuous line. The trimming tool completely eliminates the need for head cuts and recuts. After cutting in the crosscutting saw, the parts are transported out of the saw by an outfeed system. A transfer gantry takes care of further transport by rotating the parts by 90° if required and then applying a barcode label with a unique part ID. They are then transported by a belt conveyor into the buffer line. From this position, parts can be transported onwards for edge processing and

waste pieces are ejected. Another label plausibility scan is performed upstream from the angular transfer to the area transport system. If a label is illegible or if it contains no data, the workpiece is automatically ejected.

The edge banding machines control subsequent component circulation. Passing through a sectional double angular transfer, the parts are initially forwarded to the HOMAG longitudinal processing machine (infeed system SI14, finish processing standard trimming with 8-slot tool changer, PU and hot-melt glue). Another double angular transfer, also sectional in design, takes care of part feed into the second HOMAG edge processing machine (same equipment as machine 1, with standard trimming). A dynamic intermediate storage system (chain lift storage) then compensates for different resetting gaps between the longitudinal and transverse passes and guarantees free running in the gluing zone where necessary. All processed workpieces are then transported to the three-way distribution station. Once a "standard part" has been finish processed, it is placed in a porcupine buffer store until further order picking. Undersized and oversized parts are transported for manual removal to a separate diverter station. Components which require a second or even third pass are transported (with priority) to the double angle transfer upstream from machine 1 where they are fed back into the further processing sequence. This diverter control system is provided by BARGSTEDT.

### **100 % visualized part tracking with 12.5 cycles**

The 100 % visualized part tracking system across the plant's entire processing operations permits operators to maintain a continuous overview of the degree of production and whereabouts of all parts. A medium cyclical rate of 12.5 cycles / min with a batch size 1 part mix (kitchen, living room and bedroom parts) is a truly remarkable achievement. In normal operation, the entire plant can be simply run by just three operators.

### **WEEKE: Drilling and dowel driving talents**

The drilling and dowel driving work steps are also performed by HOMAG Group machines. Using the WEEKE ABD 100, Kitchens processes the internal shelves for its furniture at a speed of 24 seconds per component including a total of four fittings. Initially the ABD drills two horizontal stepped holes on one face edge, after which a shelf support is pressed into each hole. The same processing operation is then performed at the other face edge. Loading the workpieces, changing from one face edge to the other and removal are performed manually by the operator. HOMAG Engineering also integrated a WEEKE ABL 210 into an already existing WEEKE line. The workpiece sides for kitchen furniture are processed here one carcass at a time in longitudinal throughfeed. For the sides of bedroom furniture components, a pair of ABL 210 machines is used. Complete side processing takes place here in longitudinal throughfeed one carcass at a time using nine press-in units for drawer rails, plastic and brass sleeves and connectors.

### **Marcos Silva, Diretor Industrial**

"We bought the first postforming machine in Latin America from HOMAG over 30 years ago. We have cultivated this partnership ever since. One of the key reasons for this long-standing partnership is that just like Kitchens, HOMAG prioritizes quality and continuous further development. Part of the Kitchens corporate culture is the continuous search for innovation. It is only by offering our customers the best service and the best technology available that we will be able to assert our cutting-edge position as a luxury furniture producer. The plant investment described here has allowed us to implement a product range which is revolutionary in our market: Furniture with unlimited outside dimensions to an exemplary standard of quality! Despite working for so many years in cooperation with the HOMAG Group, they respected our decision to also inquire with other suppliers – which is what happened in this instance. The HOMAG Group understood our requirements perfectly well, and this arrangement helped to reinvigorate our partnership.

We also had to rethink our approach here in the company. To successfully invest in leading-edge technology means having the courage to abandon some of the concepts we have become accustomed to. Having thrown down the challenge of a new organizational discipline to our whole workforce, we are delighted with the excellent results we have achieved.

This plant with its comprehensive data and barcode processing capability, its sawing and edge processing functional units and the part transfer and handling systems forms an integral unit which permits us to achieve fast, flexible production to an extreme standard of quality. Not only has one of our most fundamental requirements – a practically instantaneous setup – been achieved to perfection by HOMAG Engineering: The combination of rip cutting with a book rotation device, trimming spindle and Power Concept in the crosscutting saw is also a truly innovative step forward, as is the automatic infeed of wide-ranging part dimensions into the edging machines. The tool changer with swivel axis used for edge processing allows us to fully automatically perform practically any cutting operation (grooving, rebating, profiling in synchronous or counter rotation in any position). Also of key importance to us are concepts such as "preventive maintenance", "remote servicing" or "life-long plant support" by the machine supplier. All this would not be possible without a sound local service infrastructure provided by technicians with the latest training. Competition is the driving force behind further development. By making this investment today, we will be extending our lead over our market competitors – particularly in terms of quality and speed!"

## For more information, contact

**HOMAG Group AG**  
Homagstraße 3–5  
72296 SCHOPFLOCH  
GERMANY  
[www.homag-group.de](http://www.homag-group.de)

**Alexander Prokisch**  
Head of Central Marketing  
Tel.: +49 7443 13-3122  
Fax: +49 7443 13-8-3122  
[alexander.prokisch@homag.de](mailto:alexander.prokisch@homag.de)

**Norbert Lärer**  
Project Leader HOMAG Engineering  
Tel.: +49 7443 13-2861  
Fax: +49 7443 13-82861  
[sven.hartmann@homag.de](mailto:sven.hartmann@homag.de)