Supplied to satisfied customers the world over, these WC cubicles have made Meta a major global player.

The Meta-Morphosis

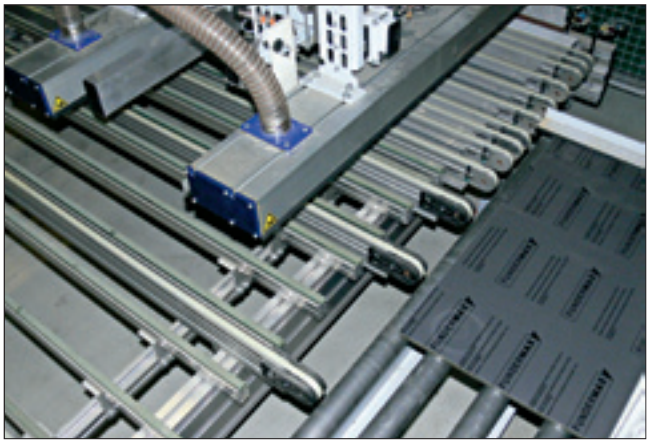
How does a company manage whose products are in worldwide demand but which are invariably ordered only shortly before building completion? It focuses its production on the latest machines, control technologies and warehousing systems to permit delivery within 24 hours if necessary. The company Meta recently afforded HK the opportunity to appraise its fully automatic production line equipped with the new laser Tec **process.**

by Wolfgang Rüter

The indispensable products enjoying such high demand around the world are made-to-measure cubicles and doors for WCs, dressing rooms and partitioned areas in public and other buildings. The company portfolio also includes lockers, vanity units, benches and shower partitions. There is no shortage of impressive references: The Olympiad in Athens, the Allianz Arena in Munich, Berlin's main railway station, the German motorway services chain Tank & Rast, Singapore and Alicante airports, club houses, local pubs, schools and many, many more.

Fully automatic unfinished panel store with panel dividing saw and computer-controlled stacking and destacking plant

The panels are transported on an order-specific basis from unfinished panel store to the fully automatic production line



Impressive for a company with a 75-strong workforce: The control centre for production control and monitoring (photos courtesy of: Meta 2, W. Rüter 8)

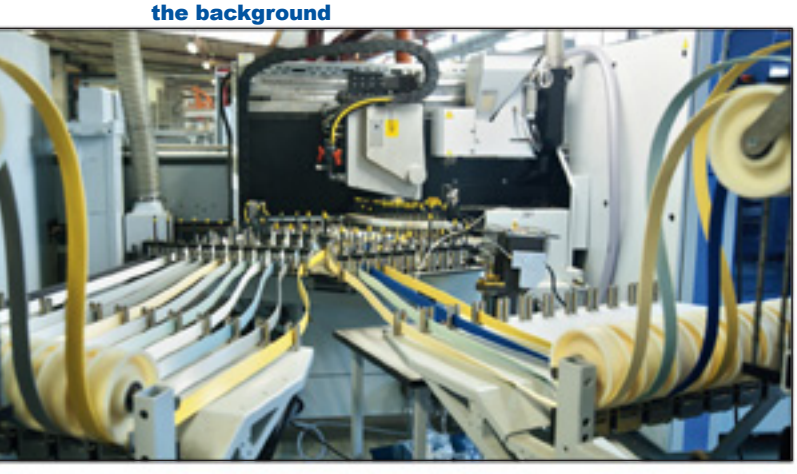
Through hard work to market leadership in cubicle systems

All these products not only have to be extremely durable and comply with stringent quality expectations, they have to be simple, safe and convenient to install. They also need to be ready for delivery within a minimum lead time. The company Meta Trennwandanlagen, based in Rengsdorf, just off the A3 Autobahn in the Westerwald region (Rhineland Palatinate) of Germany, has specialized in fulfilling just these expectations and market requirements. It claims to have reached pole position, after 40 years in business, among its five main European competitors in Germany and to be a close number two behind the market leader outside of Germany. In terms of expertise and the sophistication of its machine outfit and technical equipment, Meta claims to lead the field.

Originally founded as timber dealer Holzhandlung Weidemann in 1965, only two years later in 1967, the company had already added its own cubicle production to the portfolio. Up until around 20 years ago, the company continued on a dual path until a decision was taken to concentrate fully on the production of cubicles, which it then proceeded to expand. Since this time, this medium-sized enterprise, which now employs a workforce of around 75, has undergone rapid growth, generating a turnover of around 18 million Euro in 2009. The supply range of cubicles and doors encompasses both simpler, direct coated as well as high-grade HPL-coated (0.8 to 3 mm) panels made of chipboard and also the top-of-the-range version made of 13 mm thick compact panels. Half of the highly automated paperless production process in each case is performed using chipboard and compact panels.Production is controlled and monitored by a control centre constructed and connected to the production department internally, which is reminiscent of the control centre of a wood-based material factory.

This is where the various threads of the production process are drawn to-

laserTec **system from HOMAG with infeed of PP edge bands from Döllken. The laser is clearly recognizable in the background**



The laser Tec **plant melts the PP edge bands onto the narrow side of the panel for a „jointless“ finish using a laser beam**

gether. Individual orders received from the production engineering department – even as small as batch size 1 – are fed into the production planning system and worked through in a 24-hour three-shift operating cycle. The company only processes chipboard and compact panels from the company Fundermax. Plywood panels are also purchased from Fundermax as well as from Abet Laminati. The company has cultivated successful and cordial relations of many years‘ standing with its suppliers and customers.

Fully automatic production with laser edging

The company management at Meta is concerned to stay abreast of the times and the latest technology without compromising on speed. This necessitates regular investment. The latest investment project came to a total of around 3 million Euro, of which 2.3 million Euro was spent on a completely new production line including raw panel storage facility, cutting and edge processing. Its success in installing this plant and getting it fully up and running during the period from September 2009 to January 2010 without stoppages and with production as usual was an amazing feat of determination and strength.

The new production line including peripherals was supplied by different companies from the HOMAG Group, with which Meta has cultivated a successful working relationship over many years. The TLF warehousing technology with computer-aided stacking and destacking plant for panels up to 5,600 × 2,200 mm in size and with 90 stacking locations was supplied by Bargstedt, the type HKL 380 saw for panel cutting came from Holzma. It works in combination with a barcode control system, and is equipped with a barcode printer and line scanner. As soon as the panels have been cut, they are transported to a sorting buffer / intermediate storage facility, before being fed to the KFR 610 combination machine with workpiece infeed system WZ10 from HOMAG for single-sided sizing and edge banding.

This is followed by a second and if applicable also a further workpiece pass. Application of edges takes place using a laser unit, representing the cutting edge of development in this field, in this case using the **laser**Tec plant from HOMAG.

This technology (cf. HK 4/2009, page 74 ff) entails melting the surface of the edge band with a laser beam and then pressing it directly onto the narrow side of the workpiece. The result is certainly impressive. The process produces top-quality edges without any visible join. So convinced was Meta of the benefits of this technology that it insisted on using this method for edging its chipboard panels, once more securing itself a place at the cutting edge of technological development. The special edge bands made of 3 mm PP are supplied by Döllken, making Meta the first in its segment to make use of this type of material. Once the edge bands have been applied to the panel material in the laser station, the overhanging edges are automatically trimmed flush by trimming units accommodated in an automatic eight-slot tool changer. Two TSP 410 feeders from Bargstedt are positioned at the end of the production line for workpiece handling.

Software program

highlights optimization potential

A machine monitoring and reporting system (MMR) supplied by the HOMAG Group (Schuler) was also installed in the plant. It permits the quantification and indication of optimization potential. This places the company in a position to highlight wastage in terms of time, output and optionally also quality, as the basis for the formation key indicators such as OEE (Overall Equipment Effectiveness). This indicator, in turn, allows benchmarking between different machines. The recorded data is directly visualized at the machine or in the office or control centre in the form of graphic evaluations. Acquisition of this type of data generally takes place automatically. However, it can optionally be supplemented by the machine operator to include detailed root causes of faults. In addition, the MOS (Manufacturing Organization System) - also

No need for an employee where a job is more easily performed by a robot

The stop profiles specially designed by Meta to surround the door thickness are applied using special adhesive

from Schuler - is used for production control engineering. This means that not only is cutting plan optimization carried out automatically, the machine is also supplied with program data and the ERP (Enterprise Resource Planning) receives feedback on the production process.

Finish packaged and just in time

Using this new production line, the company produces around 800 to 1,000 finish packaged, ready-to-use cubicle units every week, using on average around 6 sq.m. of panel material each. In individual cases, thanks to a highly efficient organization and the state-of-the-art machine outfit fitted out with highly capable control and warehousing systems, customers can even collect their cubicles within the hour – reminiscent of a drive-in cafe. Adherence to promised delivery deadlines is at 95 per cent, practically on a just-in-time basis. Given that the production line measuring over 200 metres in total is run by a single employee, an amazing degree of engineering wizardry has gone into this plant.

The hardware used includes products such as hinges from Simonswerk, internally developed locks and knobs, but also door handles from Hewi, FSB, Hoppe and others. Always looking to the future, Meta tends to introduce major development changes around every four years. With its entry into the new laser age in the field of panel edging, and from the point of view of investment, Meta has demonstrated that the not inconsiderable additional cost of producing a laser edge over a hot-melt glue edge does not always have to reflect on the price of the end product. The higher material outlay, for instance, as well as other costs can be balanced out by compensation and smart process control. And in addition, the customer is presented with a superior product. Other ideas for the future include a close look at surface design, where tests are already being carried out with digital technology.

Factory Manager Reinhold Kaiser shows an internally-developed lock case

Segways are used as the ideal way to cover long distances in the factory