

Looking back on a record year – and forward to a trend-oriented future

Another record-breaking year in 2013, ideally positioned at the forefront of future worldwide flooring trends: LVT (Luxury Vinyl Tiles) are now among the most popular floor coverings, and are rapidly closing the gap to the current market leaders tiles, laminate and carpet.

Following a record year in 2007 with an incoming order volume of over 50 million Euro, the flooring team at HOMAG Group Engineering topped this performance with another outstanding year in 2013, registering incoming orders valued at over 60 million Euro. Accounting for the biggest single rise in the figures were sales of double-end profilers for LVT flooring, which almost doubled in comparison to the previous year.

Demand for LVT is booming, primarily in the USA. With a sales increase of over 8% in this market, manufacturers are clearly looking to expand their production capacity. The main trend in the USA is for 3 mm thick material with Click/Loc profile. While the focus in Europe is on high-quality, wear-resistant products in medium batch sizes, in China there is a growing trend towards greater automation and mass quantities. It is here where the greatest number of new LVT production plants is currently being constructed.

LVT is gaining ever greater market shares in all three regions due to the on-going introduction of new products in different strengths, qualities and designs. Whichever method is used – full surface gluing or planks with Click/Loc profile – there are plenty of arguments in favor of vinyl flooring:

its excellent hygiene properties, good moisture resistance for successful application in wet rooms, or its good cost-to-performance ratio. Rising demand has kept LVT prices on a consistently high level. Vinyl also offers extensive scope for individualization in terms of decor, color and structure. This opens up an ever widening product portfolio for LVT flooring manufacturers, who need to find methods of ensuring efficient production despite dwindling batch sizes. Manufacturers whose portfolio already includes floor coverings such as laminate or cork can continue to use their existing plant technology. However, this will require a number of technical adjustments to do justice to the specific material properties of vinyl. HOMAG already has technical solutions which will ideally meet this need.

Raw panel ripping

The first step in this process is to rip the raw panels using throughfeed saws. In contrast to the punching technology used by a number of manufacturers, HOMAG throughfeed saws will not only achieve higher output, but also produce a more precise rip cut due to the use of decor-specific alignment of the raw panel by a position detection system. This is particularly significant for products manufactured using the *embossing-in-register* technique. As LVT can also contain highly abrasive materials such as limestone or glass fiber, this is where the use of diamond-tipped saw blades can help to increase tool service life and minimize resetting times.

Profiling

Because of the low flexural and compression strength of the product, the special LVT double-end tenoner works with integrated pressure pads from above to support the flexible, thin material in the profile tool area without damaging the surface, so guaranteeing optimum processing precision. While protecting the sensitive surface, this method still ensures completely reliable workpiece clamping and optimum absorption of occurring cutting forces. Used in combination with the high-precision rolling transport chain

based on the proven HOMAG principle, height tolerances of +/- 0.03 mm can be guaranteed. Only in this way is it possible to successfully process 3 mm thick vinyl with a Click/Loc profile at high feed rates.

The material-specific characteristics of thermoplastic LVT have to be taken into consideration during profiling. Because of its low melt point, vinyl has a tendency to “smear”, causing continuous chips to be created which are difficult to extract. This means that the rotational speed of profiling tools and also the feed rate have to be adjusted using the machine’s control system depending on the material composition. To prevent the statically charged chips from “sticking” in the plant, the dust hoods at the tools are fitted with deionization systems. These guarantee efficient extraction of produced chips.

HOMAG has developed a scraper blade for chamfering products to create a “plank character”. This has effectively eliminated the frequently occurring problem of corrugated cuts with rotating tools.

For cross profiling of LVT, the magazine upstream from the cross machine is equipped with large contact surfaces to prevent deflection of workpieces. These are configured so that full surface contact is guaranteed even when working with different product lengths. Following in-feed into the machine, a central support stretching along the entire profiling length takes over this function.

Suction cups underneath the magazine additionally take care of tidy separation during infeed into the cross machine. To prevent damage to the already profiled longitudinal side and to support the soft material during processing by the profiling tools, the shape of the cams is adjusted to the profile, providing an optimum contact surface.

Extraction systems will also require some adjustment to ensure optimum preparation for working with LVT. A higher suction output is needed

compared to parquet or laminate profiling processes, as the material density is higher than either solid wood or HDF.

The future with HOMAG

LVT plants naturally offer manufacturers a range of choices when it comes to different degrees of automation: From manual adjustment of units through digital position displays to fully automatic NC axis adjustment, existing HOMAG technology covers every conceivable base for the processing of high-grade LVT flooring. Looking forward, HOMAG is ready to meet the future challenges of this rapidly growing market with an array of trend driven developments.

Pictures courtesy of HOMAG Holzbearbeitungssysteme GmbH



Fig. 1: Rip saw FSL 360

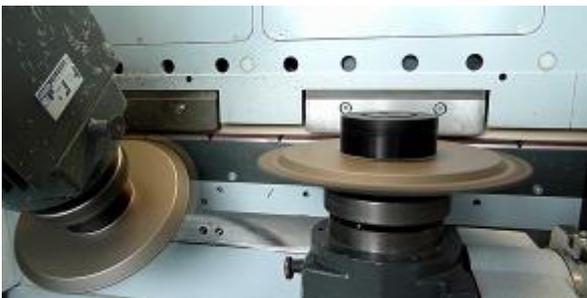


Fig. 2: Pressure pad from above at every workpiece position



Fig. 3: LVT magazine with surface contact tables upstream from cross profiling

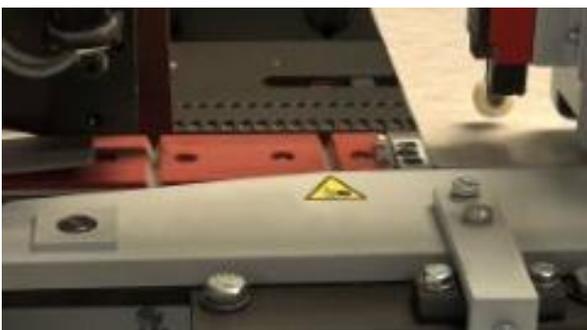


Fig. 4: Vacuum slots next to the chain track in the LVT magazine

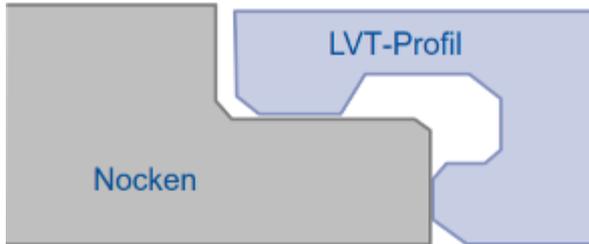


Fig. 5: Cross section of adapted cams



Fig. 6: Digital position display at the trimming unit



Fig. 7: LVT sample parts

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