

1. The special features of Döllken PVC edgebands

Döllken PVC edgebands are manufactured using the extrusion process and are fully imbued. Uniform imbuing of the material permits clean and straightforward edgeband rounding. The impact-resistant material constitution of the Döllken PVC guarantees smooth processing on the fabricator system, and many years' usage as furniture. A special formulation has been developed by Döllken for PVC edgebands which guarantees long service lives for milling and other cutting tools. Döllken PVC edgebands are coated on the back with a universal bonding agent which permits perfect bonding of the edge on the carrier material in conjunction with all suitable hot-melt adhesives, and all solvent-based adhesives.

2. PVC material characteristics

PVC (polyvinyl chloride) is one of the most widely known and used synthetics. Edge strips for the furniture industry have also been made of this material for more than 45 years, and have proven themselves given their excellent material properties. It has been the very good application processing properties of PVC in particular which have contributed to its market penetration in furniture production.

3. Application areas of Döllken PVC edgebands

The spectrum of applications for Döllken PVC edgebands is virtually unlimited - for the office, bathroom and kitchen, for shop fittings and exhibition stand construction, for residential areas and for any types of fixtures and fittings. The particularly application-friendly raw material formulation of the Döllken PVC enables straight working as well as smooth deployment on all curved furniture geometries, irrespective of whether inner or outer radii are required.

4. Machine processing

Döllken PVC edgebands can be used on all edge glueing machines with hot-melt technology. Bonding, cutting, milling, working with the draw blade and subsequent processing with polishing wheels and hot-air apparatus for high quality surfaces are possible without problem. A few central process parameters need to be observed for clean and permanent edge coating, which are currently dependent on the materials used (edgebands, adhesives, boards), the edge glueing machine and the ambient temperatures. Determining the best settings with trial and error is therefore recommended in each case. The guideline values specified by the manufacturers for the respective applications must be observed.

Adhesives

All hot-melt adhesives available on the market (EVA, PA, APAO, PUR) can be used with Döllken PVC edgebands. Adhesives highly resistant to heat, together with the low-shrinkage raw material formulation of the Döllken PVC, guarantee reliable bonding even for edges thicker than 3 mm. Adhesives which are particularly resistant to heat are recommended for high application temperatures, such as in the cooking area in the kitchen, and in containers for furniture export. When not bonded, Döllken PVC edgebands have very low "free shrinkage" values. The deformation resistance of PVC edgebands is also positive here - material softening does not occur until 80 (± 2) °C (Vicat B 50). In the bonding process, it is important to always ensure there is a sufficient amount of adhesive in the container - to guarantee a constant temperature when the adhesive is applied. The working temperature of the adhesive varies between 90 and 220°C depending on adhesive type. Please note that the thermostats in the melt container are often inaccurate, and can vary considerably from the actual temperature at the applicator roller. Measuring the temperature at the applicator roller is recommended. Using the edge glueing process to bond Döllken PVC edgebands with PVAC glue is not possible.

Adhesive amounts applied

Please follow the specifications from adhesive manufacturers. The application of adhesive should be uniform and liberal enough such that no small beads are pressed out at the edges of the freshly bonded edge, and that the cavity between wood splints is filled. The amount of glue applied is dependent on the chipboard density and adhesive type.

Working temperature

To achieve best possible results in edge coating, boards and edgebands should be at room temperature (not below 18°C). When material is stored outside, it should be warmed up overnight. When boards or edgebands are too cold, the hot-melt adhesive applied sets before the edge strip is applied. Draughts should therefore be avoided for this reason.

Wood moisture

The optimum wood moisture of the board material for processing is between 7 and 10%.

Feed rate

The special raw material formulation of Döllken PVC edgebands is aligned to the feed rate at the small-scale fabricator as well as to that standard in large-scale industry. Rates from 10 to 100 m/min are possible depending on the edge glueing machine. Rates of 30 m/min are possible on modern portal machine centres depending on geometry.

Pressure rollers

To attain the best possible seam appearance, ensure that the correct number is present and that the pressure setting is correct - taking into consideration the machine conditions.

Milling

Use if possible 3 to 6-blade milling cutters with speeds of 12,000 to 18,000 rpm. Incorrect speeds and blunt tools can damage the edgebands. If lubrication effects occur, the speed of the miller must be reduced, or milling must be in the counter direction (increase feed rate as required).

Scraping

Because the PVC material tends to lighten slightly after scraping, the maximum draw blade size should be 0.1 - 0.2 mm. The milling required here, as free of chatter marks as possible, is guaranteed by milling tools with high levels of concentricity. The use of DIA tools is helpful. Hot-air units which simply coat any stress whitening occurring as required can be used for optimisation of scraping, especially for critical colours.

Buffing

Döllken PVC edgebands can be worked very well with the polishing wheel within the radius. Any light spots arising from scraping can simply be polished away with polishing wheels, and the colour of the radius corresponds to the edge strip surface. Glue residue can also be removed using a polishing wheel on edge strip glueing machines working in pass-through mode. Also, glue residue can be removed with electronically controlled separating spray units used as standard in the industry. This also improves draw blade chip removal at the same time.

Extraction

Thermoplastic edgebands require stronger extraction than thermoset edgebands. The lower static charging compared to other thermoplastic raw materials is a benefit of Döllken PVC edgebands.

5. Manual processing

Döllken PVC edgebands can also be worked manually without problem, such as by using a glueing press or edge press. 2-component dispersion adhesives based on acrylic, and suitable contact adhesives, are recommended as adhesives here. Please contact your adhesive supplier for information. Bonding using 1-component wood PVAC glue is not possible. Special lacquer glues, solvent-based adhesives and rubber adhesives (PU) can be used when bonding by hand. We will be glad to provide you a list of types on request.

Bonding should take place at room temperature.

When contact adhesives are used, it is important to observe the ventilating time after adhesive is applied to the board and edgeband so as to guarantee optimal edge bonding. Then the edgeband is tapped.

When dispersion adhesives are used, there must be no acceleration of the bonding process using temperature (with heating rails for example). Subsequent processing (see Section 4) can start after hardening has taken place (up to 6 hours depending on adhesive).

6. Stationary working

Döllken PVC edge strips can be worked excellently on machining centres. Even tight radii are possible in consideration of a few key factors.

The following exert a significant influence over the working process:

- Edgeband designs (dimension, base colour, etc.)
- Ambient and material conditions (temperature, moisture of material)
- Adhesive properties (type, temperature, viscosity)
- Machine equipment (edgeband pre-warming, pressure, type of glue applicator roller)
- Work step programming (feed rate, offset, pressure)