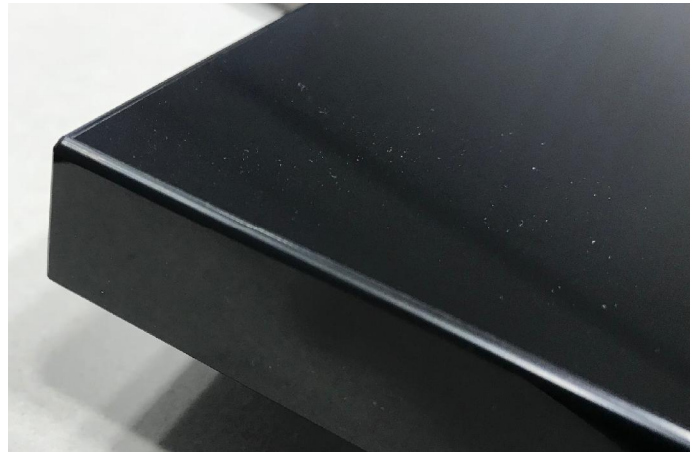
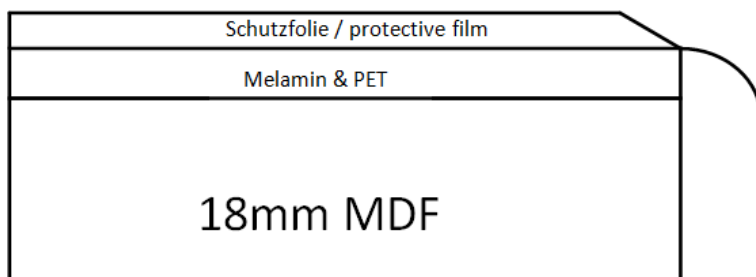


Tips for processing Pianovo

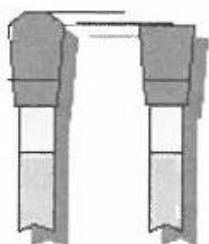
Pianovo is a composite material comprising a wood-based substrate with a transparent PET UV lacquered coating. This transparent 2D PET foil is with transparent an high UV resistant PUR glued on the board. The surface finish ensures outstanding resistance to abrasion and chemicals. The material also displays outstanding aesthetic properties. The coated panel is recommended above all for more demanding applications. The scratch-resistant surface ensures maximum durability. To prevent scratching, the surface is covered with a protective film. We recommend removing the protective film after complete final assembly



For edge processing with profile, we give the following instructions:



Sawing



Trapez/Flach

Source: (Ettelt & Gittel, *Sägen Fräsen Hobeln Bohren*, 2004)

Depending on the type of sawing machine and cut coverage, many parameters could have influence on the results, e.g.:

- Tooth shape (Hollowtooth & Alternatingtooth are to avoid)
- Quantity of teeth, the higher the better
- Tooth pitch
- Feed
- Cutting speed
- Saw blade projection

Processing instructions

Pianovo

Pianovo can be processed with hard metal-tipped tools (HM) or diamond metal-tipped tools (DP). The choice depends on the quantity being cut.

The same machines can be used as for cutting wood and metal.
Vibration-free high-speed machines produce clean cut edges

Due to the process, the Pianovo foil stands 1-5mm above the board.
The finished coated surface is protected with a transparent protective film.

Please select the first trim back as your process requires. We recommend a clean cut of at least 10mm, to cut off any defects.



Board in condition as delivered with raised protective foil

Board panel saws

- best results on both sides with:
 - o Trapezoidal-Flat (TR-FL)
 - o Appropriate scoring unit
 - o Saw blade projection 15-30 mm (depend on Ø of saw blade)
 - o Cutting speed 60-70m/sec

Handheld and panel saws

- The blade of the handheld or panel saw should protrude only a short distance from the panel when cutting.
- Always use carbide saw blades
- Tooth shape: flat trapezoidal tooth or alternate teeth with bevel
- Ensure that the saw is guided with precision
- Avoid jolting the saw
- Secure the panel to prevent it vibrating
- Work at a medium rate of advance

Compass saws

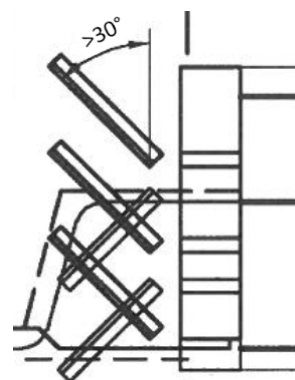
- Only use saw blades with spur toothing and a tooth spacing of 2.5 mm
- Move up to the material with the machine running
- Firmly press the saw base onto the protective film on the panel
- Set a medium cutting speed and zero oscillation
- Select a medium feed speed

Precision milling on automatic edgebanders

Pianovo can be processed with hard metal-tipped tools (HM) or diamond metal-tipped tools (DP). To chip before with a hogger is not necessary. The choice is depending on the quantity being processed. Because this is the finish-processing, diamond-metal-tipped tools are recommended.

- Processing with conventional up-milling
- Pulling cut
- axis angel: min 30°
- Tool with high concentricity.
- As possible with small abrasion ≤ 1 mm
- At best with big axe angles & precision sanded clearance angle.
- Feed per tooth 0,15 – 0,3mm
- Cutting speed: 50-60 m/sec.

Example: Ø 100 mm - 12.000 U / min
 Ø 125 mm - 9.000 U / min
 Ø 150 mm - 8.000 U / min
 Ø 180 mm - 6.000 U / min



The following points have to be concerned when using a surface milling cutter:

- The cutter must be sharp and in perfect condition
- The workpieces must always be clamped securely
- The workpiece must always be guided against the direction of travel of the cutter (upcutting)
- First produce a trial cut on a sample piece and check the setting of the surface milling cutter
- Always use a fence and / or template

Drilling

On drilling machines commercially HM dowel drills are proved. Maybe with full-hard-metal tools (HVM) The choice is depending on the drill coverage. In any case rapid drilling is necessary. Best results to drill fast into the material and to drill fast out of the material (Modus S-S-S).

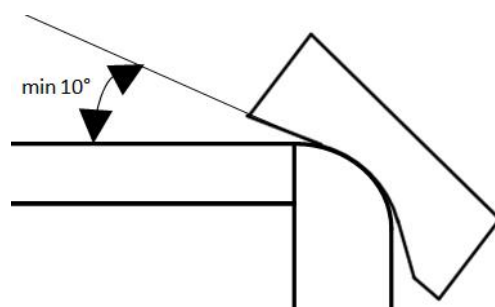
Feed: 3-4 m/min

Number of revolutions: 4500-6000 U/min

In general, the processing can be done from both sides. For optimal avoidance, it recommends that you work from the top side.

Profile processing

- The form of the tool has to be confirmed with the thickness of edgeband and the desired profile.
- The thickness of the protective foil (approx. 50 µ mm) must also be considered.
- Radii miller should have a run-out from min 10°.
- The more cutting edges, the better the result.
- To remove milling bumps, we recommend reworking with profile and flat scraper blades. They should be also installed with a small run-out, so that the protective film isn't damaged.



Note for adhesion:

- In order to produce a durable joint, we recommend for the edgebanding process using PUR adhesive or zero-joint technology, e.g. Plasma, Laser or HotAir.
- Especially for Pianovo Metall products we recommend the use of PH-neutral products.
- Also to be avoided are condensation-curing sealants, like acrylic or silicone.
- The open cut surfaces should be protected from moisture as much as possible. For this reason, we against use PVAC glue.

General information:

The composite materials are used for interior decoration and furniture construction.

Correct order handling includes conscientious incoming inspections. These comply with the general terms of business of Niemann-Möbelteile. The composite elements must be transported and stored with care. They are best stored on a level, horizontal and dry substrate. To prevent the panels warping due to moisture, they should be stored indoors. In addition, the furniture parts should not be stored at temperatures below 15 °C for any length of time. This could cause irreparable damage to the composite (warping). Relative humidity should lie between 45 and 65%.

Disclaimer: Please be advised that, by industry standards, a tolerance of up to four dimples per square meter is considered acceptable in PET products. These dimples do not compromise the overall quality and performance of the material. Additionally, please note that any imperfections or discrepancies in our products that are not visible from a distance of more than 12" / 300mm may not be eligible for coverage under our warranty or return policy. We recommend thorough inspection upon receipt, and any concerns should be reported promptly.

The information in this leaflet has been compiled in collaboration with the manufacturer of the top-material and is based on current knowledge.

It is merely provided for guidance and does not constitute any warranty as to certain product properties or the product's suitability for a particular use. The user must verify the products' suitability for the intended application in each case. This applies both when sampling a product for the first time and in the event of changes in ongoing production. Since we have no influence whatsoever on the individual materials and processing conditions in our suppliers' plants, we cannot accept any liability based on the information given here. The user of our product is responsible for ensuring compliance with the laws and regulations in force. Subject to technical modification without notice.