DendroLight®

3-layer panel (3L)

PROCESSING AND APPLICATION

1. Definition/structure

DendroLight® 3 layer panel consists of DendroLight® middle layer material and deck material - HDF or plywood. The DendroLight® middle layer material provides unique characteristics of the panel. The middle layer consists of unique spruce or pine profiles. Unique, because their weight is reduced by ~ 40% (also reduced internal tensions). The unique structure of middle layer material allows avoiding parallel fiber swelling influence on the covering layers, thus reducing the swelling in thickness of the panel and ensuring stability of the surface.

- Light weight (360-477 kg/m^3 even with such dense surfaces as HDF)
- Low swelling characteristics (as low as 0,5 % - depending on thickness and type of deck material)
- High surface stability – homogenous surface. Very important for panels with smooth glossy surface like HPL etcetera.
- No internal tensions (tensions can be created only by the deck layers)
- Good SCREW hold characteristics (for surface in range of 760 - 950 N/mm^2; side (raw) - 530 N/mm^2)
- Easy to process – possible to use conventional tools.

2. Dimensions & degree of readiness

The material is delivered from the factory ungrinded/uncalibrated (tolerance +/- 0,2 mm), with cover sheet, packed in palettes.

	Standard Formats (mm)									
Surface material	MDF (HDF); PLY									
Standard dimensions	PLY: 1220x2440 MDF (HDF):									
	2070		2080			2850			4080	
	2800		4080	2040	1010	805	1220	605	1020	
Surface layer thicknesses	MDF (HDF): 3; 4; PLY: 4; 6,5*; others on request									
Total thicknesses	20	22	25	30	40	44	50	54	60	≤80
PCS per pallet *(HDF:4080x2080)*	*25*	*22*	*20*	*16*	*12*	*11*	*10*	*9*	*8*	-
PCS per pallet *(PLY:1220x2440)*	*55*	*50*	*44*	*36*	*27*	*25*	*22*	*20*	*18*	-

*Total thicknesses starting from 30mm and up
MDF (HDF) – Medium-Density Fiberboard (High-Density Fiberboard)
PLY -Plywood

3. Technical data

Material	DendroLight® 3-layer panel with 4 mm HDF			
Species of wood	Pine			
	Standard	**Unit**	**Result**	
Thickness		mm	25	60
Structure		mm **(HDF +ML+HDF)**	4+17+4	4+52+4
Glue type	ML – PVAc; Surface - EPI			
Density	EN 323	kg/m^3	477	385
Bending strength	EN 310	N/mm² long gr.	18,8	9,5
		N/mm² cross gr.	17,0	8,7
E-module	EN310	N/mm² long gr.	2390	1370
		N/mm² cross gr.	2290	1240
24 h swelling in thickness	EN 317	%	8,2	3,6
Sound insulation index R_w	EN 717-1	dB	26	31
Internal Bond	EN 319	N/mm²	0,48	0,44
Withdrawal of screws	EN 320	N (from plane)	760	950
		N (from margin)	530	560

Material	DendroLight® 3-layer panel with 4 mm plywood			
Species of wood	Pine			
	Standard	Unit	Result	
Thickness		mm	25	60
Structure		mm (plywood+ML+plywood)	4+17+4	4+52+4
Glue type	ML – PVAc; Surface - EPI			
Density	EN 323	kg/m^3	446	352
Bending strength	EN 310	N/mm² long gr.	41,0	21,1
		N/mm² cross gr.	21,4	11,1
E-module	EN310	N/mm² long gr.	7670	4540
		N/mm² cross gr.	3290	1850
24 h swelling in thickness	EN 317	%	4,3	1,9
Internal Bond	EN 319	N/mm²	0,98	0,76
Withdrawal of screws	EN 320	N (from plane)	1320	1290
		N (from margin)	580	600

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4. Application

Indoors – 3-layer panel with HDF or plywood. Gluing – EPI ((emulsion polymer isocyanate*) system 1920 / 1992*); (ML with D3 min;)
Outdoors (does not apply to bearing constructions) – 3-layer panel with plywood (according to plywood application requirements). Gluing – EPI ((emulsion polymer isocyanate*) system 1920 / 1992*); ML with D4 min.

5. Storage

Recommended climate – dry (65% relative humidity at 20^{o}C).
Surface requirements – the surface must be flat, to prevent the deformation of the material.
To prevent bending of the material it is necessary to use wood or similar material pallet legs in sufficient quantity and of equal size. The horizontal plane must form a straight line in all directions of the plate. Packages must be placed one above the other - that the package legs form a straight vertical line against the legs of each following package.
Package cover – packages must be covered at all times - to prevent moisture transfer in the upper layer.
Exceptions – **if the material is not stored in the above-mentioned climate**, then before being used the material must be acclimated in the correspondent circumstances.

6. Mechanical processing

Processed/glued – *sawing* (recommended saws with neg. 5^{o} tooth edge angle), *cutting* (by using an appropriate milling cutter), *drilling*.

By the processing of the 3-layer plate the deck layer material must be taken into account (it's processing principals and recommendations). Edge

7. Laminating/ covering/ veneering – surface processing

Because of surface stability DendroLight® ML material is well-suited for laminating, mainly veneering and covering with a variety of other decorative materials.
Appliable adhesives (PVAc, EPI, PUR, etc.) depend on the further use of the material and top layer requirements regarding the adhesive.

The temperature of further processing must not exceed 120°C.

Pressing pressure – recommended pressure for gluing – max 4 kg/cm^2.

Pressing parameters may vary depending on the applied adhesive type, manufacturer and type of the deck layer production.

8. Edge banding

Edge thickness - preferable – at least 2 mm

Gluing - PU, hot melt adhesive or white PVAc.