SURFORMA®
Shaping Spaces

SURFORMA® WarmIN HPL and Compact

Decorative HPL and Compact laminates with
low voltage warmers integrated for interior applications

DESCRIPTION

SURFORMA® decorative WarmIN HPL and Compacts integrate an ultra-thin, lightweight and fast response digital warming technology that turns furniture and interior surfaces in our living environments into smart warming surfaces. Real-time warmth, safe, efficient, effortless to install and operate, with over 20% potential energy savings.

WarmIN HPL and Compacts are customized products. The warmers layout are defined for each type of application panel.

Decorative laminates, according to EN 438, are an excellent material for indoor surfaces, either horizontal or vertical. SURFORMA® decorative WarmIN HPL and Compacts meet the stringent requirements for hygiene, fire resistance, humidity resistance and mechanical properties.

The laminate surface is ANTIBACTERIAL, tested according to ISO 22196 and validated accordingly to Japanese regulation JIS Z 2801.

HPL are cured and therefore chemically inert. Laminates surfaces are physiologically safe and approved for use in direct contact with foodstuff.

These eco-friendly WarmIN HPL and Compacts are available in a wide variety of colours, patterns and surface textures, providing extensive options for architects and designers.

Please check offer & service brochure for information on sizes and thicknesses available.

APPLICATIONS

Warmth When and Where You Need It

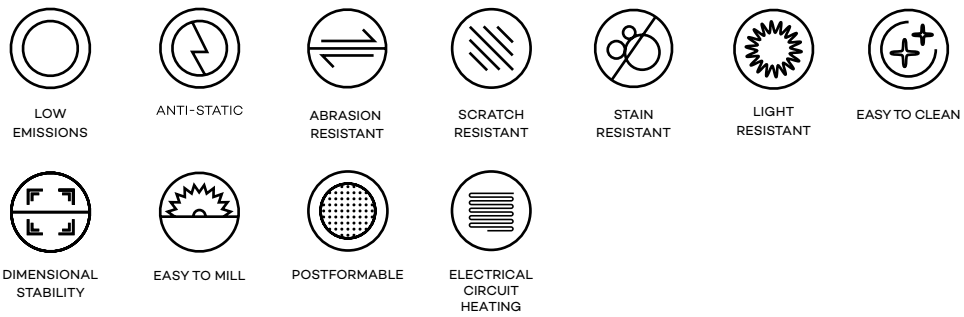
Considering the growing worldwide awareness about sustainability, SURFORMA with its partners developed an innovative and unique Laminate with inserted heating technology that reduces electricity consumption and decreases ecological footprint.

Decorative WarmIN is intended for applications to indoor horizontal or vertical surfaces and generate accumulated savings by reducing the consumption of materials and energy used to produce and install traditional heaters, such as air conditioning, radiators, or radiant flooring. During its lifetime, WarmIN technology significantly reduces the amount of energy spent for spaces heating.

It is also a solution for exterior furnitures, such as Terrace Tables, but not for facades.

Design, appearance, quality, durability, mechanical resistance and dimensional stability are important features for applications such as interior wall coverings, partitions, doors, cubicles, lockers, cabinets, components for the construction sector and transport industries in general.

PROPERTIES



RECOMMENDATIONS

The advice and recommendations are of advisory nature only

Handling & Storage

WarmIN HPL and Compacts should be stored in a normal room climate, i.e., at approx. 18-25°C and 50-65% relative humidity, so they are protected from moisture, humidity and direct sunlight. The Laminates and Compacts should be store flat in horizontal racks.

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Maintenance & Cleaning
SURFORMA® WarmIN HPL and Compacts require no special maintenance because of their durable, hygienic and waterproof surface. Their surface can be cleaned with warm water followed by wiping with a paper towel or soft cloth. Persistent contamination can usually be eliminated with non-abrasive household cleaners. They are resistant to most solvents and chemicals used daily at home.
Abrasive chemical cleaners and abrasive utensils, sponges or cloths can not be used.

Processing
Machining - SURFORMA® WarmIN HPL and Compacts require no special equipment.
The equipment and tools commonly used for cutting and drilling HPL and Compacts are suitable for cutting the new WarmIN Laminates.
The selection of the required carbide tipped tools, particularly for saws and routers, should be based on manufacturers recommendations.

Cutting – special attention is needed in this operation to assure that the warmer is not cut.

Adhesives - SURFORMA® WarmIN HPL and Compacts require no special adhesives. The most common adhesives used for gluing laminates, such as PVAc, PUR, etc can be used in this innovative laminate.

Electronic components, control system and electrical connections
The WarmIN HPL and Compacts need a complete system of electronic control to be effective.
This system is customized and developed for each application

Transportation, Recovery and Disposal
In terms of transport regulations, Laminates are not classified as a hazardous material; therefore, labelling is not necessary.
Laminates are an article and not a chemical substance and therefore the REACH regulation does not apply.
Due to their high calorific value (18-20 MJ/kg)1 Laminates are suitable for thermal recycling.

Laminates can be brought to controlled waste disposal sites in accordance to current national and/or regional regulations.

GENERAL FEATURES - WarmIN HPL

WHS WarmIN HPL Standard
WHP WarmIN HPL Postforming

PROPERTIES	TEST METHOD	UNIT (MAX OR MIN)		WHS , WHP
Dimensional tolerance requirements (EN 438-2:2016, Clause No.)				
Thickness	EN 438-2:5	mm (max. variation)	0,8 ≤ t ≤ 2,0	± 0,15
Length and width	EN 438-2:6	mm		+ 10 / - 0
Edges straightness	EN 438-2:7	mm/m (max. deviation)		1,5
Edges squareness	EN 438-2:8	mm/m (max. deviation)		1,5
Flatness	EN 438-2:9	mm/m (max. deviation)		60
General Requirements				
Resistance to surface wear	EN 438-2:10	Revolutions (min.)	Initial Point	150
Resistance to immersion in boiling water	EN 438-2:12	Appearance, rating (min.)	Gloss/other finishes	3 / 4
Resistance to water vapour	EN 438-2:14	Appearance, rating (min.)	Gloss/other finishes	3 / 4
Resistance to dry heat (160 °C)	EN 438-2:16	Appearance, rating (min.)	Gloss/other finishes	3 / 4
Dimensional stability at elevated temperature	EN 438-2:17	Cumulative dimensional change % (max.)	Longitudinal	0,55
			Transversal	1,05
Resistance to wet heat (100 °C)	EN 438-2:18	Appearance, rating (min.)	Gloss/other finishes	3 / 4

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PROPERTIES	TEST METHOD	UNIT (MAX OR MIN)		WHS , WHP
Resistance to impact by small diameter ball	EN 438-2:20	Spring force, N (min.)		20
Resistance to scratching	EN 438-2:25	Force (min.)	Smooth/ Textured finishes	2 / 3
Resistance to staining	EN 438-2:26	Appearance, rating (min.)	Group 1 e 2 / Group 3	5 / 4
Light fastness (xenon arc)	EN 438-2:27	Contrast	Grey scale rating	4 a 5
Density	EN ISO 1183-1	Density, g/cm3 (min.)		1,35
Additional requirements for postformable - Type P laminates				
Formability	EN 438-2:31 o 32	Radius, mm	Longitudinal	10 x laminate≤ nominal thickness
			Transversal	20 x laminate≤ nominal thickness
Resistance to blistering	EN 438-2:33 o 34	Time to blister, seconds	Thickness <0,8 mm	≥ 10
		(t2 – t1)	Thickness <0,8 mm	≥ 15

SURFORMA® **WarmIN Laminates** are classified in accordance with EN 438 – Sheets based on thermosetting resins (Usually called Laminates) – Part 3: Classification and specifications for laminates less than 2mm thick intended for bonding to supporting substrates. For more information about these properties, please refer to the corresponding Technical Datasheet.

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GENERAL FEATURES - WarmIN COMPACT

WCS WarmIN Compact Standard

PROPERTIES	TEST METHOD	UNIT (MAX OR MIN)		WCS
Dimensional tolerance requirements (EN 438-2:2016, Clause No.)				
Thickness	EN 438-2:5	mm (max. variation)	2.0 ≤ t < 5.0	± 0.30
			5.0 ≤ t < 8.0	± 0.40
			8.0 ≤ t < 12.0	± 0.50
			12.0 ≤ t < 16.0	± 0.60
			16.0 ≤ t < 25.0	± 0.80
Length and width	EN 438-2:6	mm		+ 10/- 0
Edges straightness	EN 438-2:7	mm/m (max. deviation)		1.5
Edges squareness	EN 438-2:8	mm/m (max. deviation)		1.5
Flatness	EN 438-2:9	mm/m (max. deviation)	2.0 ≤ t < 6.0	8.0 mm /m
			6.0 ≤ t < 10.0	5.0 mm /m
			10.0 ≤ t	3.0 mm /m
General Requirements				
Resistance to surface wear	EN 438-2:10	Revolutions (min.)	Initial Point	150
Resistance to immersion in boiling water	EN 438-2:12	Appearance, rating (min.)	All finishes	4
		Mass increase % (max)	2.0 ≤ t < 5.0	5.0 7.0
			t ≥ 5.0	2.0 3.0
		Thickness increase % (max)	2.0 ≤ t < 5.0	6.0 9.0
			t ≥ 5.0	2.0 6.0
		Edge, rating (min)	All thickness	3 3
Resistance to water vapour	EN 438-2:14	Appearance, rating (min.)	All finishes	4
Resistance to dry heat (160 °C)	EN 438-2:16	Appearance, rating (min.)	All finishes	4
Dimensional stability at elevated temperature	EN 438-2:17	Cumulative dimensional change % (max.)	2.0 ≤ t < 5.0 Longitudinal	0.40
			2.0 ≤ t < 5.0 Transversal	0.80
			t ≥ 5.0 Longitudinal	0.30
			t ≥ 5.0 Transversa	0.60
Resistance to wet heat (100 °C)	EN 438-2:18	Appearance, rating (min.)	All finishes I	4

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PROPERTIES	TEST METHOD	UNIT (MAX OR MIN)		WCS
Resistance to impact by small diameter ball	EN 438-2:21	Drop height, mm (min.)	2.0 ≤ t < 6.0	1400
			t ≥ 6.0	1800
Resistance to crazing	EN 438-2:24	Appearance (min.)	Grade	4
Resistance to scratching	EN 438-2:25	Force, rating (min.)	Smooth / textured finishes	2 / 3
Resistance to staining	EN 438-2:26	Appearance, rating (min.)	Groups 1 & 2 / Group 3	5 / 4
Light fastness (xenon arc)	EN 438-2:27	Contrast	Grey scale rating	4 to 5
Flexural Modulus	EN ISO 178	Stress, MPa (min.)	Longitudinal & Transversal	9000
Flexural Strength	EN ISO 178	Stress, MPa (min.)	Longitudinal & Transversal	80
Density	EN ISO 1183-1	Density, g/cm3 (min.)		1.35

SURFORMA® **WarmIN Compacts** are classified in accordance with EN 438 – Sheets based on thermosetting resins (Usually called Laminates) – Part 4: Classification and specifications for compact laminates of thickness 2 mm and greater.

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GENERAL FEATURES - WarmIN Elements

The element surface and mechanical features comply with the WarmIN HPL or WarmIN Compact requirements, as per previous tables.

Each element has a specific thecnical drawing that define sizes, tolerances and warmers layout.

Our due diligence system for tracing the origin of wood - FSC® & PEFC standards:
The well-known certification systems for sustainable forest management FSC and PEFC are equally evaluated by us to ensure traceability of timber throughout the supply chain, from harvest through to the finished product as a proof that the wood originally comes from certified and sustainably managed forests and other controlled sources.
In addition to providing assurance, FSC and PEFC certified materials can also support customers' LEED and BREEAM certification strategies.

CERTIFICATIONS