



SPUR HARDEX XPP PERFORMANCE is a thermoplastic structured foam made of polypropylene (PP). The structure of the foam is made up of 95–98% by closed cells. It offers excellent mechanical properties in shear and compression, impact strength. It is resistant to fatigue stress. The material has an excellent chemical resistance, water resistance, organic solvents resistance and health safety. The foam can be produced with higher resistance to UV radiation, recycled content or with higher resistance to burning and emits significantly lower toxic fumes when burning compared to other materials. The advantage is its recyclable.

Compared to materials made from foamed PET or PS, **SPUR HARDEX XPP PERFORMANCE** offers better mechanical properties.

SPUR HARDEX XPP PERFORMANCE can be used as a core for a composite sandwich structure with excellent mechanical properties combined with low weight. It is used in areas where the lightness and mechanical resistance of the product is required, e.g.: furniture boards, structural boards/profiles, the construction industry, the automotive industry – interior equipment (caravans, trucks, ...). The foam can be processed and cut similarly to wooden materials and can be joined with screws, nails, and glues, by fusion welding and hot air welding. It has the ability to process by thermoforming. Also, the material can be laminated with functional surface layers by reactive or hot-melt glues, or in case of good compatibility without glues by heat only.

MECHANICAL PROPERTIES

<i>Tensile properties (all values in tolerance ± 7,5%)</i>										
Type of test		Norm	Units							
Bulk Density		EN 1602	kg.m⁻³	40	60	80	100	120	150	200
Length wise	Strength	ASTM C297	MPa	0,51	0,82	1,15	1,52	2,38	2,58	3,84
	Modulus			6	11	19	29	51	64	111
<i>Compressive properties (all values in tolerance ± 7,5%)</i>										
Length wise	Strength	EN 826	MPa	0,04	0,07	0,10	0,14	0,18	0,25	0,38
	Modulus			1,8	2,6	3,3	3,9	4,4	5,1	5,8
<i>Screw retention (all values in tolerance ± 7,5%)</i>										
Resistance to the axial withdrawal of screws		EN 320	N	45	65	95	130	170	210	295
Determination of withdrawal capacity of fasteners		EN 13446	N.mm ⁻²	1,2	1,7	2,3	2,9	3,5	4,3	5,8

THERMAL PROPERTIES

Type of test	Norm	Units							
Bulk Density	EN 1602	kg.m⁻³	40	60	80	100	120	150	200
Thermal conductivity	EN 12667	W.m. ⁻¹ K ⁻¹	0,043	0,043	0,042	0,041	0,040	0,040	0,040
Coefficient of linear thermal expansion	ISO 11359-2	(10 ⁻⁵) K ⁻¹	16	14	9,9	5,2	4,1	3,5	1,9
Max. process temperature without thickness loss	-	°C	155						
Short-time operating temperature	-	°C	from -40 to +130						
Continuous operating temperature	-	°C	from -30 to +100						
Laminating temperature *	-	°C	from +140** to +200 (recommended)						
Thermoforming temperature *	-	°C	from +130 to +160 (for foam) up to +200*** (for sandwich type)						

* During the use of high temperatures above 160 °C, the thickness loss depends on setting, time, and properties of the laminated layer.

** With using special lamination layer (upon inquiry).

*** Upon inquiry.

FIRE PROPERTIES

Type of test	Norm							
Bulk Density	EN 1602	40	60	80	100	120	150	200
Fire classification of buildings and constructions	EN 13501-1	Class E, D, C						
	DIN 4102-1	Class B3, B2, B1						
	UL94	Class HBF, HF1, HF2, V0, V1, V2						

OTHER PROPERTIES

Type of test	Norm	Units							
Bulk Density	EN 1602	kg.m⁻³	40	60	80	100	120	150	200
Type of structured foam									
Closed cell content	EN 4590	%	95-98						
Diffusion for water vapor	EN 13469	-	MU 2000						

DIMENSIONS OF THE PRODUCT*

Type of test	Norm	Units							
Bulk Density	EN 1602	kg.m⁻³	40	60	80	100	120	150	200
Length	mm		Standard 2440 ± 10 Up to 3000** ± 10						
Width			1200 ± 10						
Thickness			(3 - 100) ± 0,5						

* At room temperature +23°C.

** Upon inquiry.