

3D|CORE™ XPS

PROPERTIES AND TECHNICAL DATA

Status: 01.02.2021



The 3D|CORE™ XPS is a polystyrene foam which is suitable for ultra-lightweight construction applications. The honeycomb structure provides more flexibility and is easy to handle. The core is applicable with all known Epoxy and PU resin systems.

PROCESSING

- Hand lay-up
- Vacuum Infusion
- Vacuum Assisted Light-RTM
- Bonding

PROPERTIES

- Closed-cell foam (no water absorption, no re-expansion, no outgassing)
- Ultra-light foam
- Easy processing with all known Epoxy and PU resin systems
- Not applicable with Styrene
- Homogenous connection of all components
- Excellent surface adhesion (connection between the surfaces and core)
- Highly consistent material properties
- Excellent thermal insulation
- Integrated flow mesh

APPLICATION

- Ship and boat building: hull, deck, interior
- Industrial components: sport equipment, furniture
- Architecture and Construction: roofs, walls, panels
- Motorsport: spoiler, bonnet, side elements
- Sports & Leisure: Kanu, Surfboard

3D|CORE™ XPS TECHNICAL DATA

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			FOAM TYPE	XPS	XPS	XPS
			STRUCTURES	HX	RB	DT
DENSITY		kg/m³	Basic foam ⁽¹⁾	45 ⁽³⁾	45 ⁽³⁾	45 ⁽³⁾
SHEAR MODULUS	ASTM C 273	MPa	Basic foam ⁽¹⁾	15	15	15
			3D CORE™ Hybrid ⁽²⁾	36,57	43,71	73,62
SHEAR STRENGTH	ASTM C 273	MPa	Basic foam ⁽¹⁾	0,43	0,43	0,43
			3D CORE™ Hybrid ⁽²⁾	1,07	1,19	1,45
COMPRESSION MODULUS	ISO 844:2014	MPa	Basic foam ⁽¹⁾	30	30	30
			3D CORE™ Hybrid ⁽²⁾	141,17	218,58	269,45
COMPRESSION STRENGTH	ISO 844:2014	MPa	Basic foam ⁽¹⁾	0,7	0,7	0,7
			3D CORE™ Hybrid ⁽²⁾	5,07	6,51	7,17
THERMAL CONDUCTIVITY	at 23°C	W/mK	Basic foam ⁽¹⁾	0,07	0,07	0,07
MAX. PROCESSING TEMPERATURE		°C		40		

MEASUREMENT STANDARD SHEETS	WIDTH	mm ± 5		405	405	405
	LENGTH	mm ± 5		1015	1015	1015
	THICKNESS	mm ± 0,3		3 – 29	3 – 29	3 – 29

1: The values above are the actual values of the suppliers of the precursor material. We can't give a guarantee for the quality of the values and the related measurements. 3D|CORE primarily evaluates the properties of processing of the individual foam system knowing that the quality of the foam core is essential for the quality of the composite. The size of cavities and the properties have a major influence of the final part. Please regard that every part requires its own calculation of strength and component testing.
(NH_17.10.2017)

Basic foam means foam without structure.

2: The values above are based on measurements on specimen of sandwich panels made by 3D|CORE. These panels were produced with an Epoxy system and Vacuum Injection technology. These values can differ depending on the manufacturing process. Please use the above values only as an indication for your analysis and please provide your own measurements. Specimen thickness of 20mm. (NH_22.01.2021)

Hybrid means foam core and structure filled with Epoxy resin

(3): Tolerances +/- 7 kg/m³

STRUCTURES

HX: HEXAGON

RB: RHOMBUS

DT: DELTA

RESIN UPTAKE (VACUUM INFUSION):

Structure HX:	Structure RB:	Structure RB:
40g/m²/mm	71g/m²/mm	107g/m²/mm

The resin uptake depends on the process as well. Please only use this formula as an indication value.