

THERMHEX PEI HONEYCOMB CORES

Continuing to work with lightweight materials whilst using sustainable materials is one of the major challenges today's aviation industry faces. Aerospace industry and other high end applications have been favouring non-recyclable thermoset phenolic resin based honeycombs for a long time. To provide a more sustainable alternative, we offer a high performance thermoplastic honeycomb core. This without compromising the markets needs in weight, fire-safety and performance.

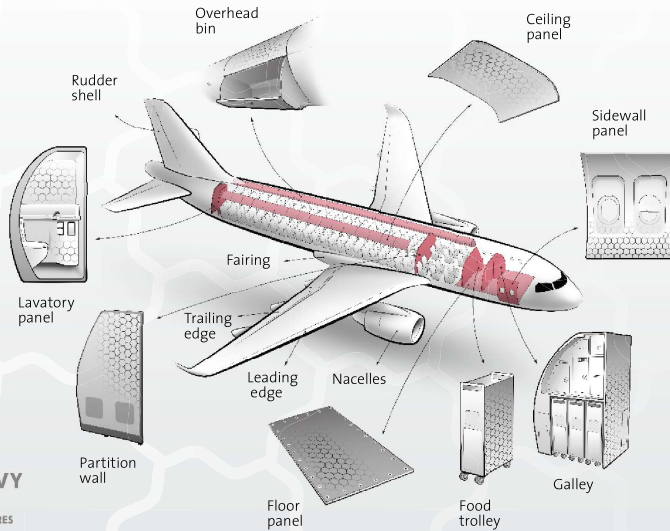
The target applications for PEI honeycomb cores are mainly aircraft and railway interior components. With a need for ramp up of production volumes and increasing focus on SHE (safety,

health, environment), efficiently produced thermoplastic honeycombs made with the already proven EconCore technology offer great potential. The thermoplastic honeycomb is typically laminated with fibre-reinforced thermoplastic composites, resulting in a mono-material, all-thermoplastic sandwich solution.

EconCore's new patented ThemHex wavy cell wall geometry increases the cell wall buckling resistance and thus the key mechanical properties of the honeycomb core.

ADVANTAGES IN AIRCRAFT INTERIORS

HIGH WEIGHT-SPECIFIC STIFFNESS AND STRENGTH
POTENTIAL COST REDUCTIONS
REDUCED CO₂ FOOTPRINT
100% RECYCLABLE PEI
EXCELLENT FIRE RESISTANCE
ENABLES ADVANCED THERMOPLASTIC PROCESSING



ThermHex WAVY
 HIGH PERFORMANCE THERMOPLASTIC CORES

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ThermHex
 an econcore group company



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MARKETS & APPLICATIONS

THERMHEX PEI HONEYCOMB CORES

THERMHEX^{WAVY} POLYETHERIMIDE HONEYCOMB CORES
 THE NEW HIGH PERFORMANCE THERMOPLASTIC CORE MATERIAL

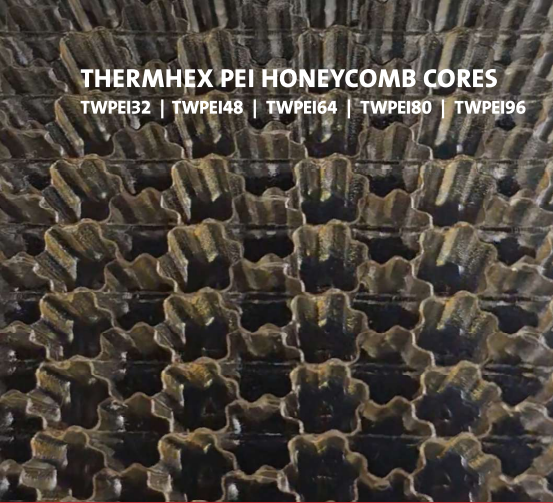
NEW PRODUCT

ThermHex WAVY
 HIGH PERFORMANCE THERMOPLASTIC CORES

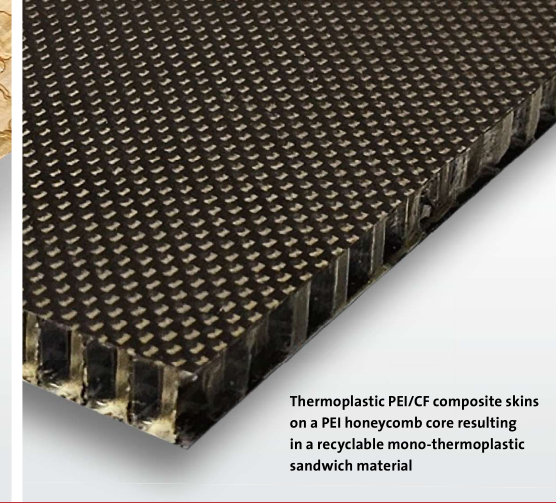
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THERMHEX PEI HONEYCOMB CORES

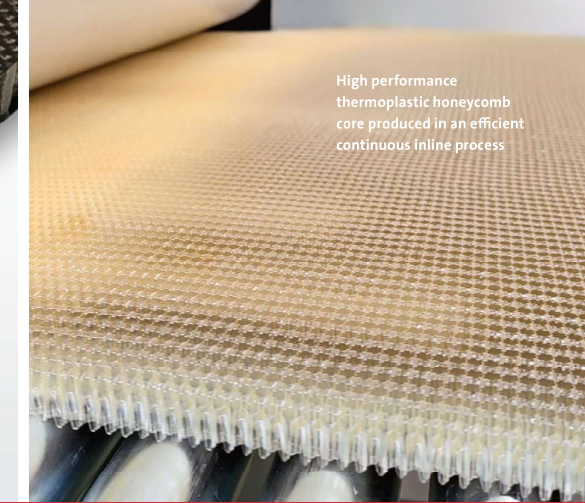
TWPEI32 | TWPEI48 | TWPEI64 | TWPEI80 | TWPEI96



ThermHex honeycomb core with improved buckling and shear optimised patented wavy cell geometry



Thermoplastic PEI/CF composite skins on a PEI honeycomb core resulting in a recyclable mono-thermoplastic sandwich material

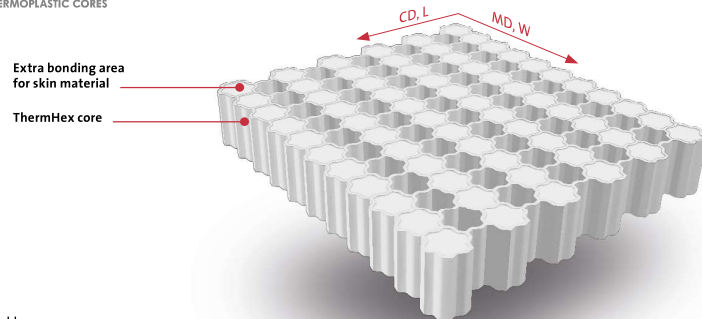


High performance thermoplastic honeycomb core produced in an efficient continuous inline process

TECHNICAL DATA

PRODUCT DESCRIPTION

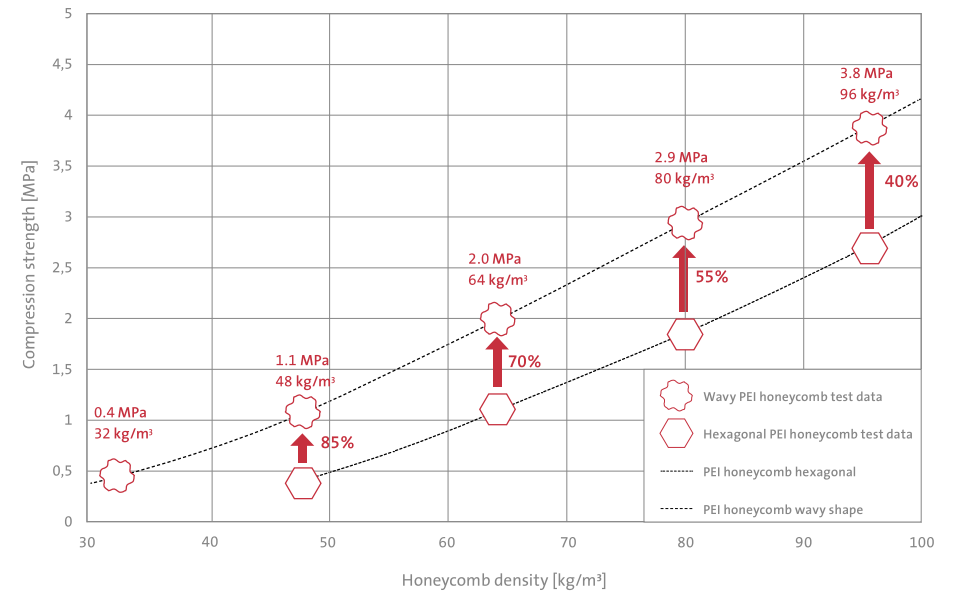
	TWPEI32	TWPEI48	TWPEI64	TWPEI80	TWPEI96
Core material	Polyetherimide	Polyetherimide	Polyetherimide	Polyetherimide	Polyetherimide
Core thickness (mm) (other geometries available upon request)	7" 10" 12	7" 10" 12	7" 10" 12	7" 10" 12	7" 10" 12
Cell size (mm)	6.4	6.4	6.4	6.4	6.4
Cell wall density (kg/m³)	32	48	64	80	96
Compressive strength (Z-direction) (MPa) (ASTM C365)	0.4	1.1	2.0	2.9	3.8
Compressive modulus (Z-direction) (MPa) (ASTM C365)	20	50	65	75	85
Shear strength (CD, L) (MPa) (ASTM C273)	0.5	0.6	0.7	0.8	0.9
Shear strength (MD, W) (MPa) (ASTM C273)	0.2	0.3	0.4	0.5	0.6
Shear modulus (CD, L) (MPa) (ASTM C273)	18	22	25	28	31
Shear modulus (MD, W) (MPa) (ASTM C273)	4	9	11	13	15
Fire resistance	Fulfills all requirements of Federal Aviation Regulation (FAR 25.853)				
Standard dimensions (MD, W x CD, L) (mm)	2500 x 1200 (* 7mm and 10mm currently available in 400 mm width and ≥ 48 kg/m³)				
Temperature range (°C)	-55 to +180				



ThermHex^{WAVY} PEI is protected by Patent EP4275877 and EP1824667.

THE COMPRESSION STRENGTH OF THERMHEX^{WAVY} PEI HONEYCOMB CORES

Flatwise compression strength (bare, not stabilised) in function of honeycomb cell wall density



ThermHex^{WAVY} PEI honeycomb core is a continuously produced thermoplastic honeycomb core with exceptional fire resistance and temperature stability.

Besides thermoplastic PEI/CF or PEI/GF composite skins, which can be bonded by thermoplastic welding, also conventional thermoset e.g. epoxy prepreg skins can be bonded to ThermHex^{WAVY} PEI honeycombs.