THERMHEX PEI HONEYCOMB CORES

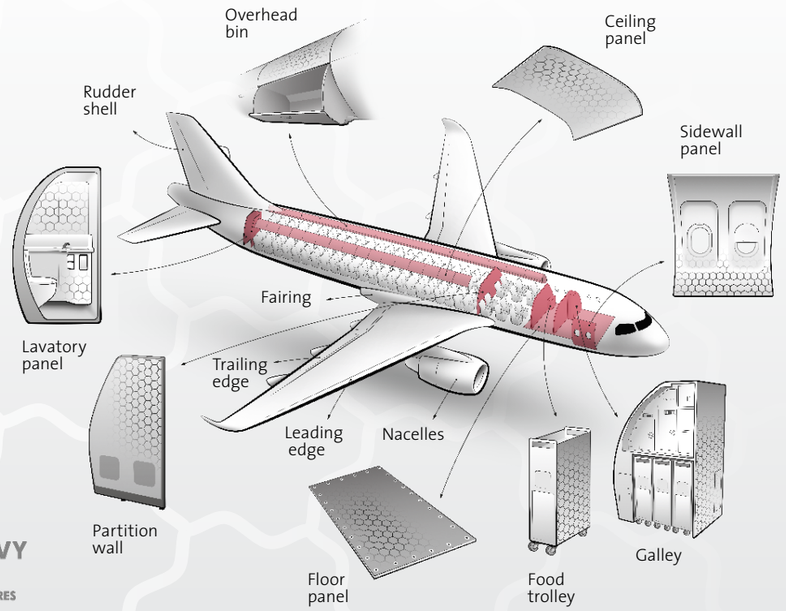
Continuing to work with lightweight materials whilst using sustainable materials is one of the major challenges today's aviation industry faces. Aerospace industry and other high end applications have been favouring non-recyclable thermoset phenolic resin based honeycombs for a long time. To provide 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 CO_2 FOOTPRINT
- 100 % RECYCLABLE PEI
- EXCELLENT FIRE RESISTANCE
- ENABLES ADVANCED THERMOPLASTIC PROCESSING



ThermHex WAVY
HIGH PERFORMANCE THERMOPLASTIC CORES

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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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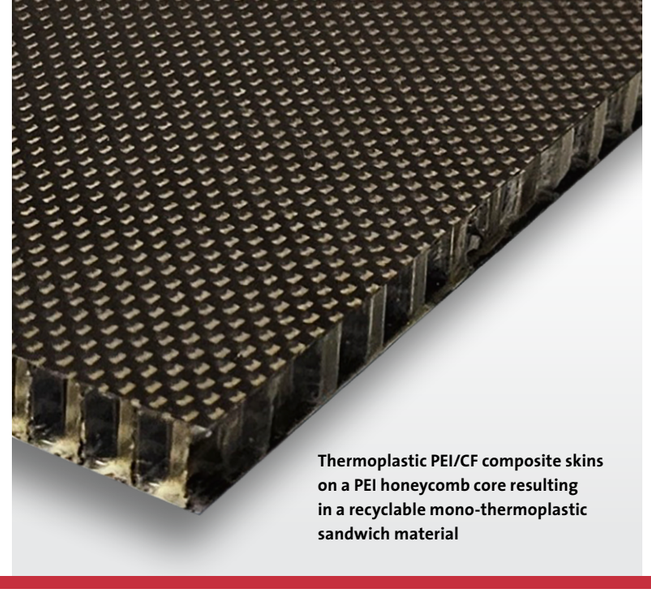
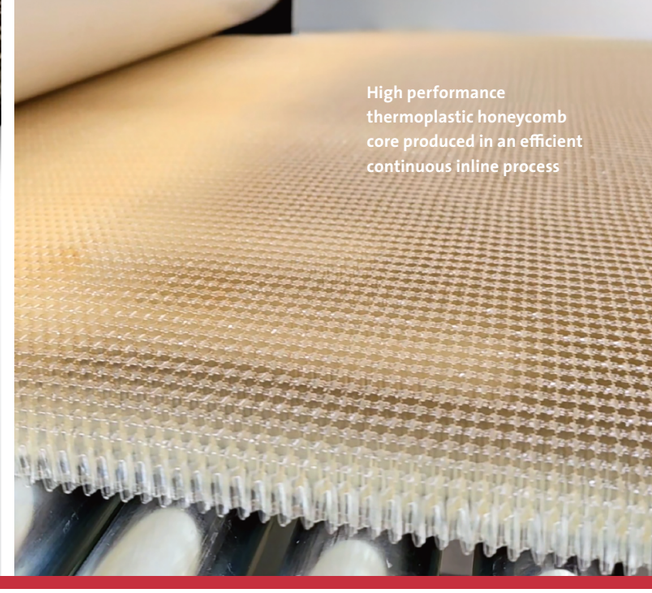
THERMHEX PEI HONEYCOMB CORES

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 × CD, L) (mm)	2500 × 1200 (* 7mm and 10mm currently available in 400 mm width and ≥ 48 kg/m³)
Temperature range (°C)	-55 to +180

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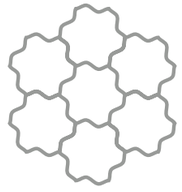
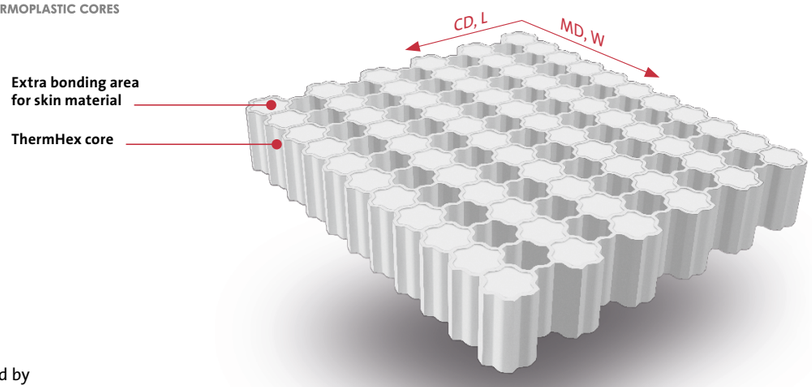
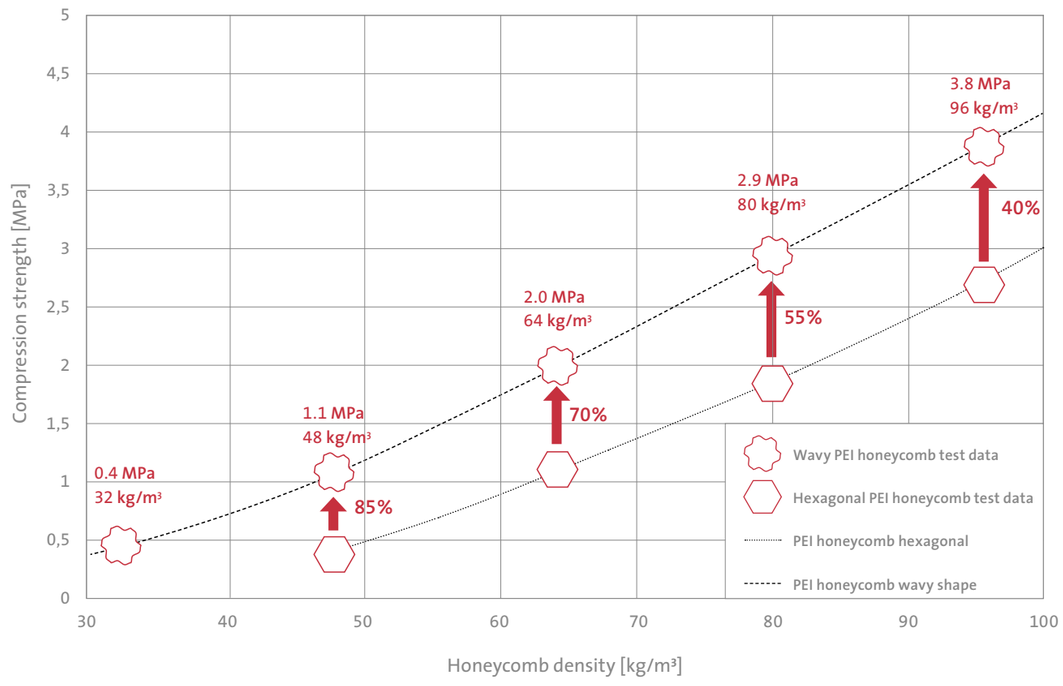




ThermHex^{WAVY} PEI is protected by Patent EP4275877 and EP1824667.

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.

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