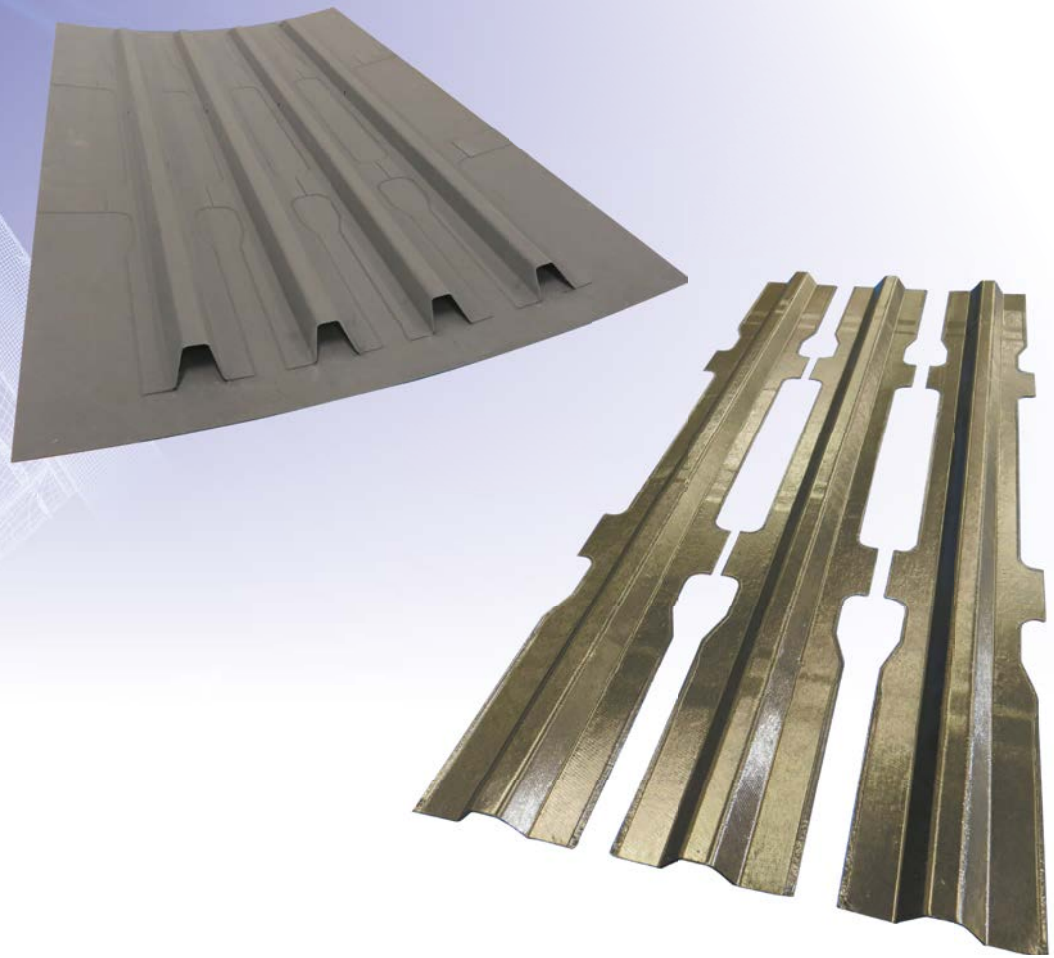
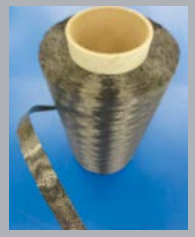
HiTape®

A new efficient composite solution for Primary Aircraft Structures



HiTape® key technology benefits

Cost & production rate
+
Prepreg-like mechanical performance

High performance	High throughput	Out of autoclave
Reinforcement	Preform	Part
		
HiTape®	Automation	Infusion/Injection, Cure & NDI
Dry UD Reinforcement	Dry Fibre Placement	Standard Processes

HEXCEL®

Reinforcement

High performance UD
No defrosting
No paper or polyethylene film
Room temperature storage
No cut filaments - no fuzz
Heat-activated binder
Designed for HexFlow® resins
Permeability - formability
Unlimited shelf life
Suitable for ATL & AFP equipment

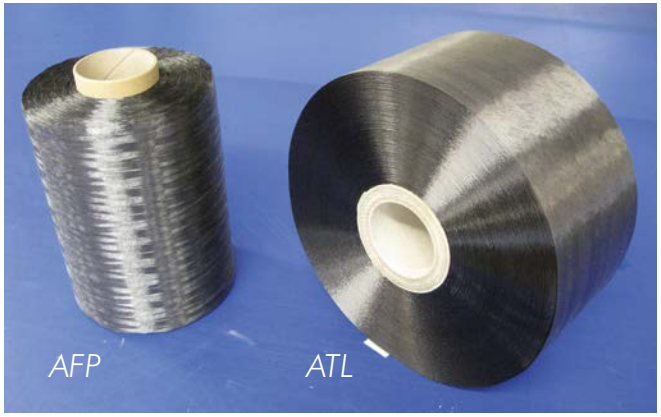
HiTape® physical properties

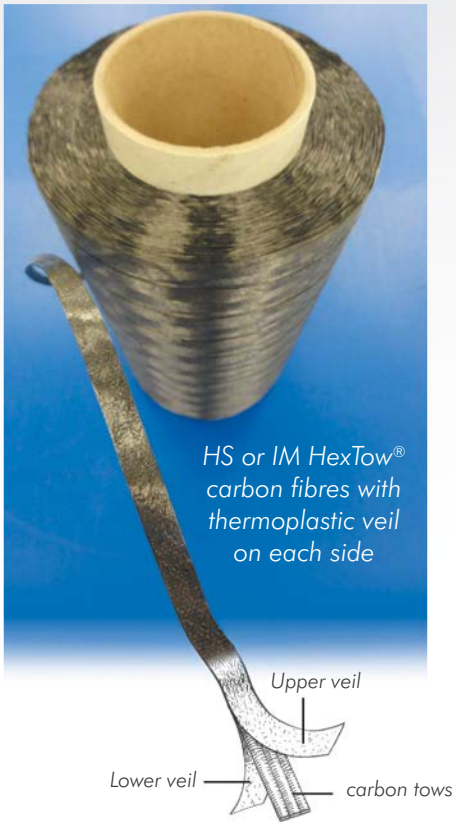
Width versus areal weight

Width in mm *(inch)*	HexTow® AS7 Areal weight in gsm			HexTow® IMA/IM7 Areal weight in gsm				
6.35 *(1/4)*	126	-	252	140	-	210	-	280
12.70 *(1/2)*	126	190	252	140	175	210	245	280
Up to 500 *(20)*	Standard areal weights							

Areal weight versus width

Areal weight in gsm	HexTow® AS7 Width in mm *(inch)*		HexTow® IMA/IM7 Width in mm *(inch)*			
134	5.98 *(0.24)*	-	3.33 *(0.13)*	-	6.66 *(0.26)*	-
150	5.34 *(0.21)*	10.68 *(0.42)*	5.95 *(0.23)*	-	8.92 *(0.35)*	-
194	4.13 *(0.16)*	8.26 *(0.32)*	4.60 *(0.18)*	-	6.90 *(0.27)*	-
268	2.99 *(0.12)*	5.98 *(0.24)*	3.33 *(0.13)*	5.00 *(0.20)*	6.66 *(0.26)*	8.33 *(0.33)*
Other areal weights available on demand						





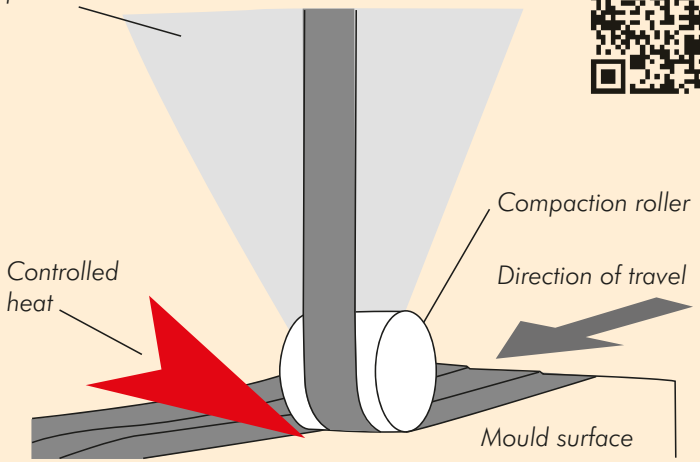
HiTape® is made from a whole number of carbon tows.
No cut filaments = no fuzz

Preform

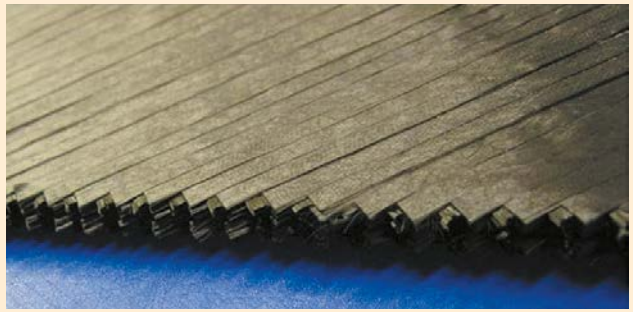
No AFP/ATL head cleaning
Cold and hot forming of dry preform
Automated placement
First ply positioning
No splice
Machine and creel at room temperature
Low bulk factor
High throughput
No intermediate compaction
Low roller compaction force

HiTape® dry preform lay-up

Automated lay-up



Lay-up process principle

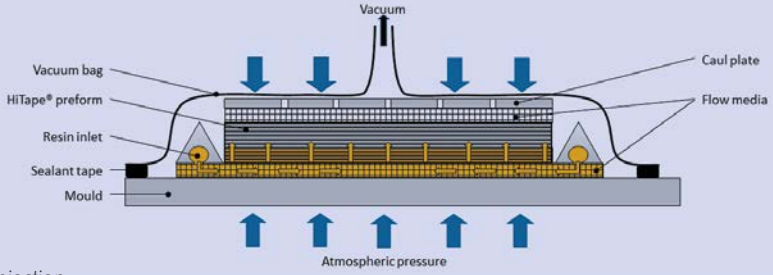


HiTape® dry preform

Part

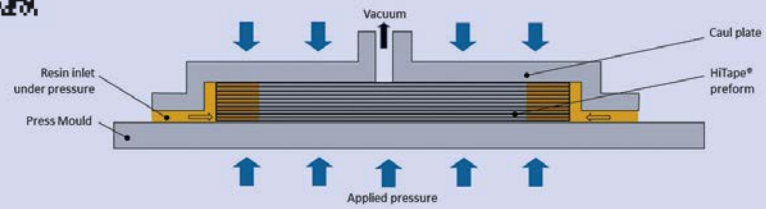
HiTape® out of autoclave infusion with HexFlow® RTM6 resin

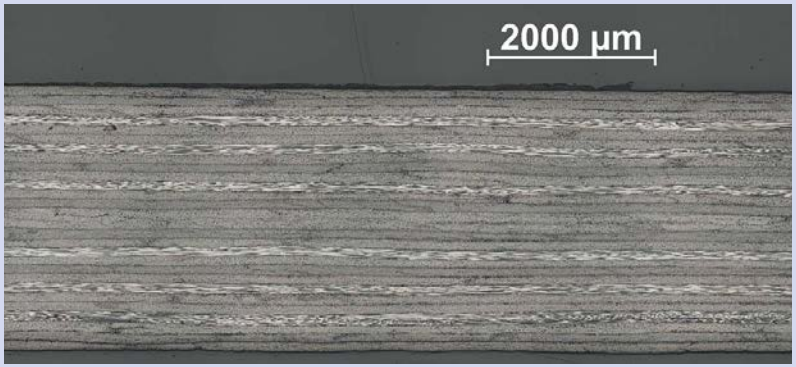
Typical vacuum infusion process (single face tool)



Infusion and injection processes

Typical injection process (low pressure injection)





Micrograph of HiTape® AFP - 6.35 mm (1/4")

No autoclave

Prepreg-like mechanical performance with HexFlow® resins

Liquid composite moulding: infusion, injection

Very low void content

Complex structures

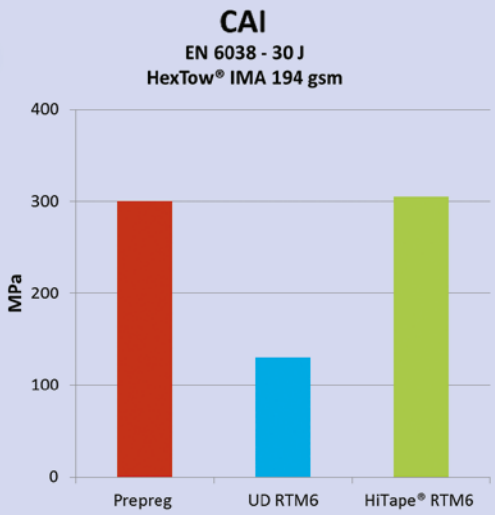
Outstanding G_{1c}

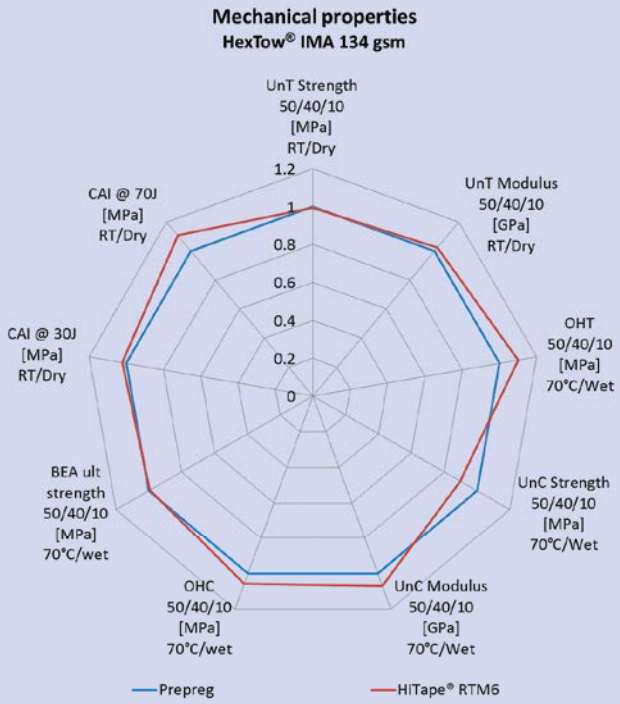
Integrated design

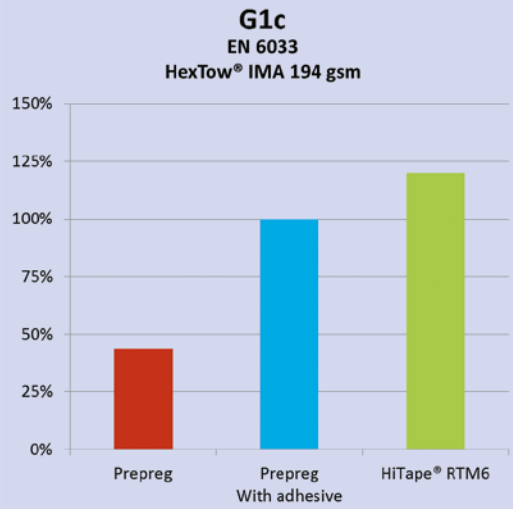
60% fibre volume content

Reduced assembly time

Standard NDI equipment







HiTape®

Reinforcement

- High performance UD
- No paper or polyethylene film
- Room temperature storage
- No defrosting
- No cut filaments - no fuzz
- Heat-activated binder
- Unlimited shelf life
- Permeability - formability
- Suitable for industrial fibre placement equipment
- Designed for HexFlow® resins

Preform

- High throughput
- Automated placement
- First ply positioning
- No splice
- No AFP/ATL head cleaning
- Machine and creel at room temperature
- No intermediate compaction
- Low roller compaction force
- Low bulk factor
- Cold and hot forming of dry preform

Part

- No autoclave - no nitrogen
- Liquid composite moulding: infusion, injection
- Prepreg-like mechanical performance with HexFlow® resins
- Outstanding G1c
- Very low void content
- Complex structures
- 60% fibre volume content
- Reduced assembly time
- Integrated design
- Standard NDI equipment

Please contact our team for further information:
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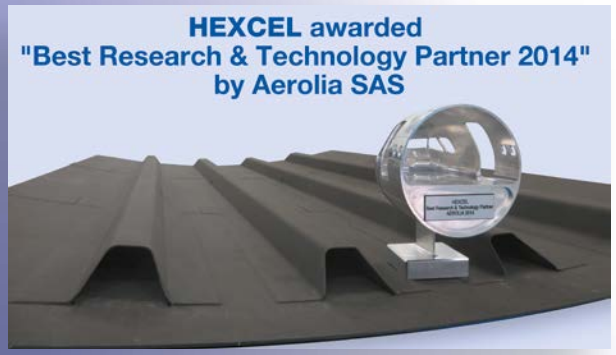
jec GROUP WINNER OF 2015 INNOVATION AWARD



Hexcel worked with Aerolia SAS (Stelia Aerospace) to design and manufacture an aircraft fuselage panel demonstrator. It's a self-stiffened skin made by vacuum infusion using Hexcel's innovative HiTape® reinforcements and HexFlow® RTM6 resin.