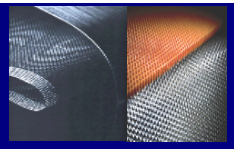
PrimeTex™

“Heaviest carbon tows for lightest woven fabrics”

Bruno Bolzinger – JEC - March 30th, 2011

Hexcel – Leader in Advanced Composites

	Hexcel Product	Key Input	
Composite Materials Segment	Carbon Fiber	Acrylonitrile	
	Reinforcements	Glass Fiber Carbon Fiber	
	Carbon Prepregs	Carbon Fibers Resins	
	Glass and Other Prepregs	Glass Fibers Aramid Fibers Resins	
	Honeycomb	Aramid Paper Aluminum Foil	
EP Seg	Engineered Products	Honeycomb Prepregs Adhesives	

Broad Range of Composite Materials and Applications

Hexcel – Markets

Commercial

Space

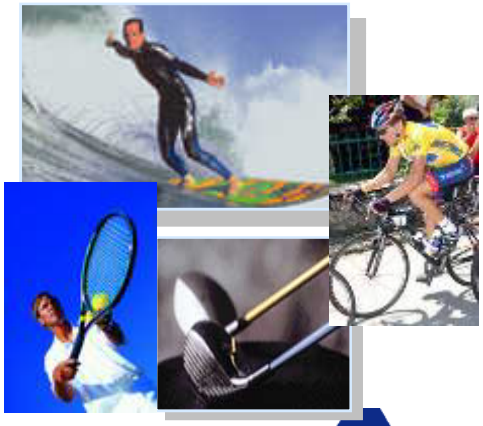
Military

Wind Energy

Automotive

Marine

Recreation

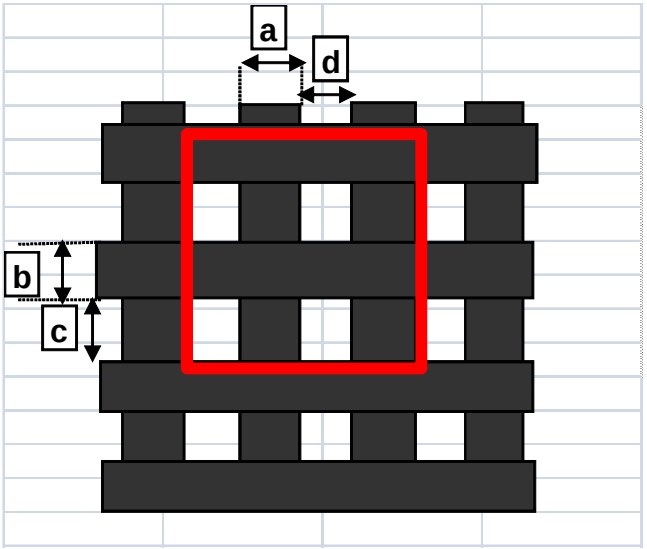


PrimeTex™ definition

- **PrimeTex™: Range of carbon fabrics which have been processed for a smooth, closed weave and uniform cosmetic appearance.**
- **Fiber tows are flatly woven then spread in both warp and weft direction for maximum fabric closure:**
  - **Cosmetic and surface finish**
  - **Reduction of skins porosities risks**
  - **Improve sandwich skins water tightness**
- **Hexcel has patents covering its innovative weft insertion and spreading technologies.**
- **PrimeTex™ quality is measured through fibre coverage ratio named “open factor”.**

Open factor definition

- **Open factor is the ratio of the hole areas (white) over the area of the weaving pattern (black and white) on large area – then giving an indication of "fabric openness"**



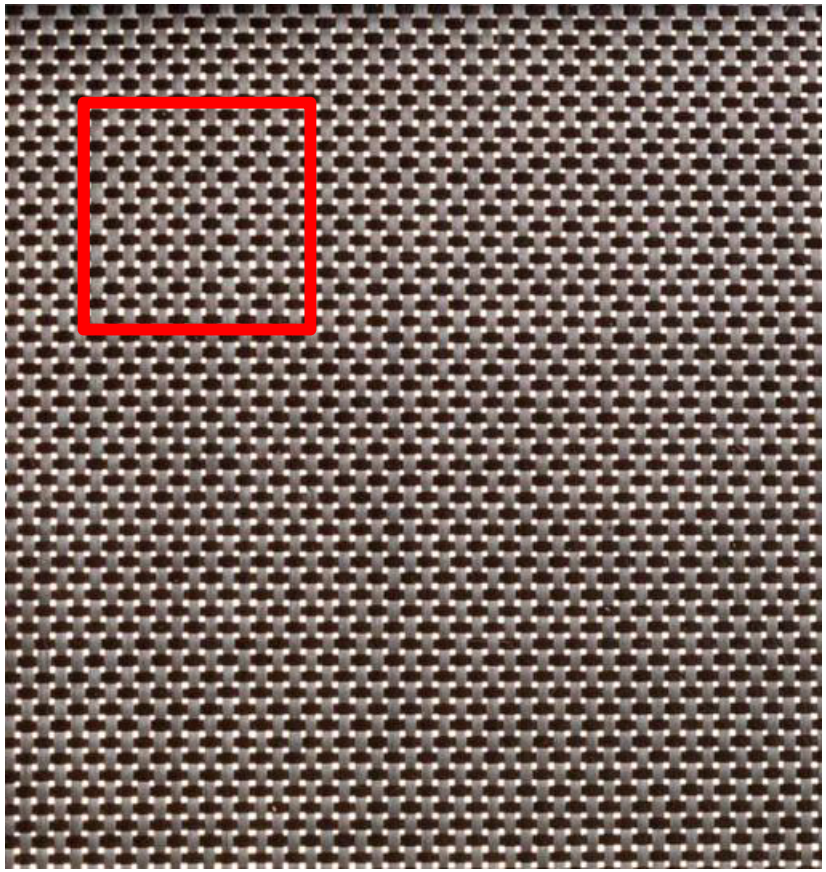
- **Light intensity and picture parameters are calibrated**
- **The more the light goes through the fabric, less important is the fiber coverage.**
- **That measuring process had been transferred in software used by Hexcel on all PrimeTex™ products**

Open factor measured on 200 gsm , Plain Weave standard 3K fabric

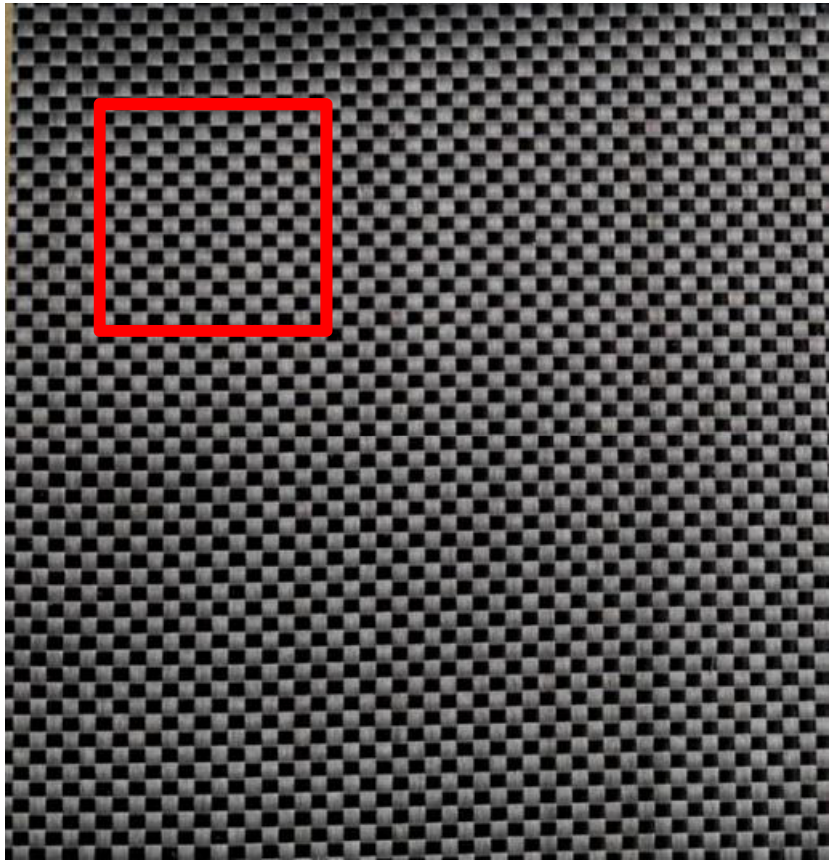
Fibre	Open factor
Grafil TR30S 3K A	9,9%
Hextow AS2C J 3K HS CP3000	7,5%
Hextow AS4C GP 3K HS CP3000	9,3%
Hextow AS4C GP 3K HS CP4000	9,3%
Tenax E HTA40 E13 3K	8,5%
Thornel T650/35 3K UC309 GV2	10,5%
Torayca FT300B 3K 40B	7,0%
Torayca T300B 3K 40B L2	7,0%

FT300 3K 40B and AS2C J 3K show better fibre coverage

PrimeTex™ High Strength 3K, optical properties

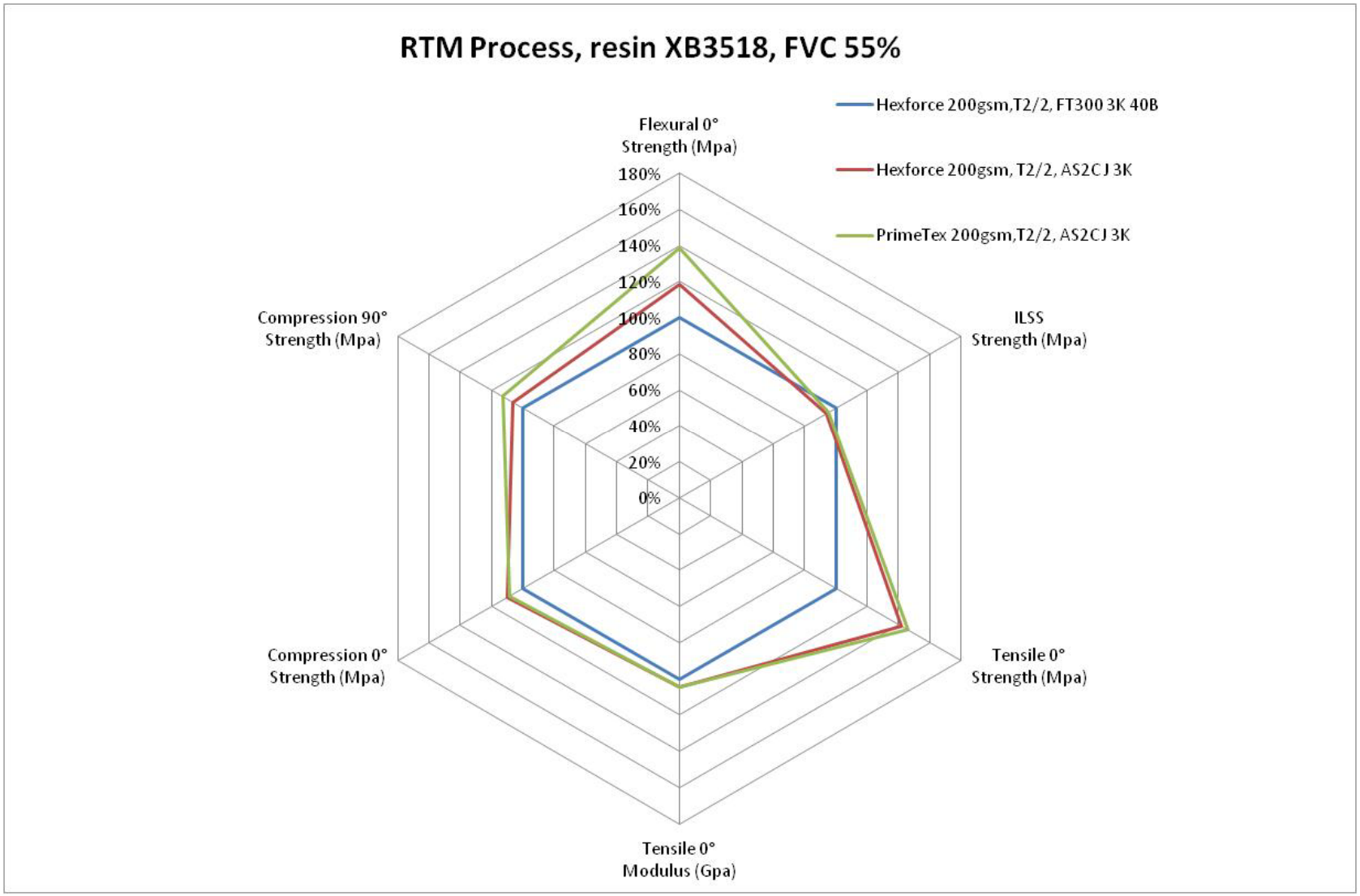


Hexforce® 200 gsm, PW, AS2C J 3K
Open factor: 7.5%



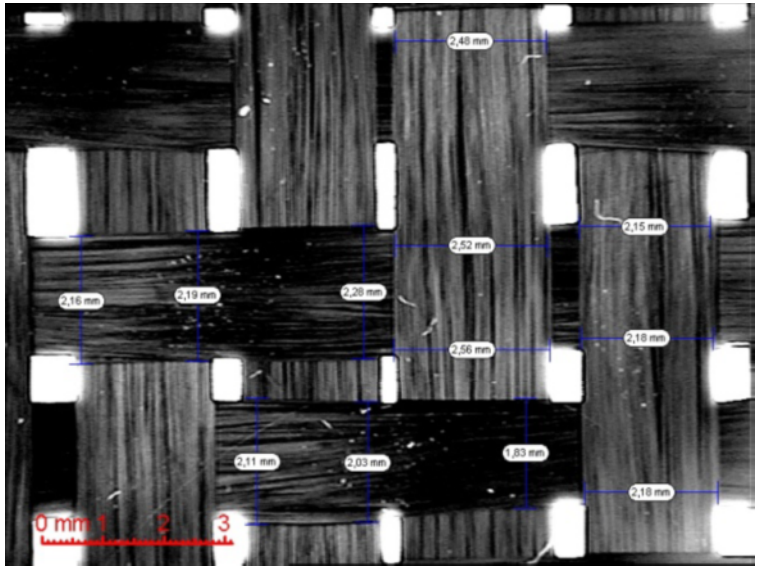
PrimeTex™ 200 gsm, PW, AS2C J 3K
Open factor: 0.5%

PrimeTex™ High Strength 3K, mechanical properties

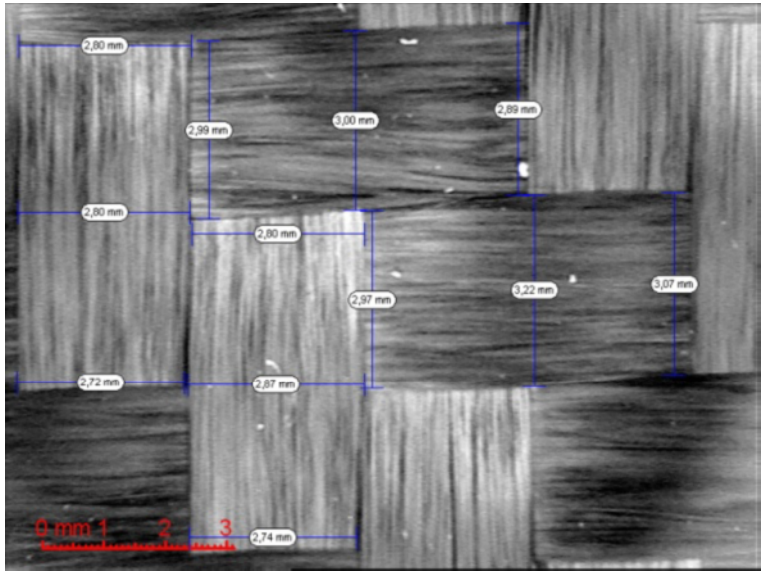


PrimeTex™ High Strength 6K,optical properties

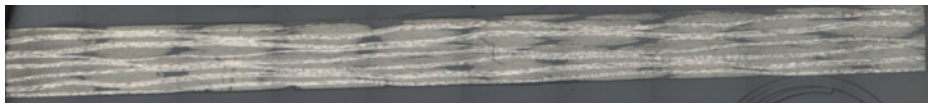
Hexforce® 285 gsm, Twill 2/2, HS6K
Open factor: 3.37%



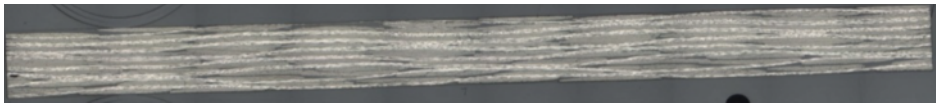
PrimeTex™, 285 gsm, Twill 2/2, HS6K
Open factor: 0.1%



Micrographic @0°

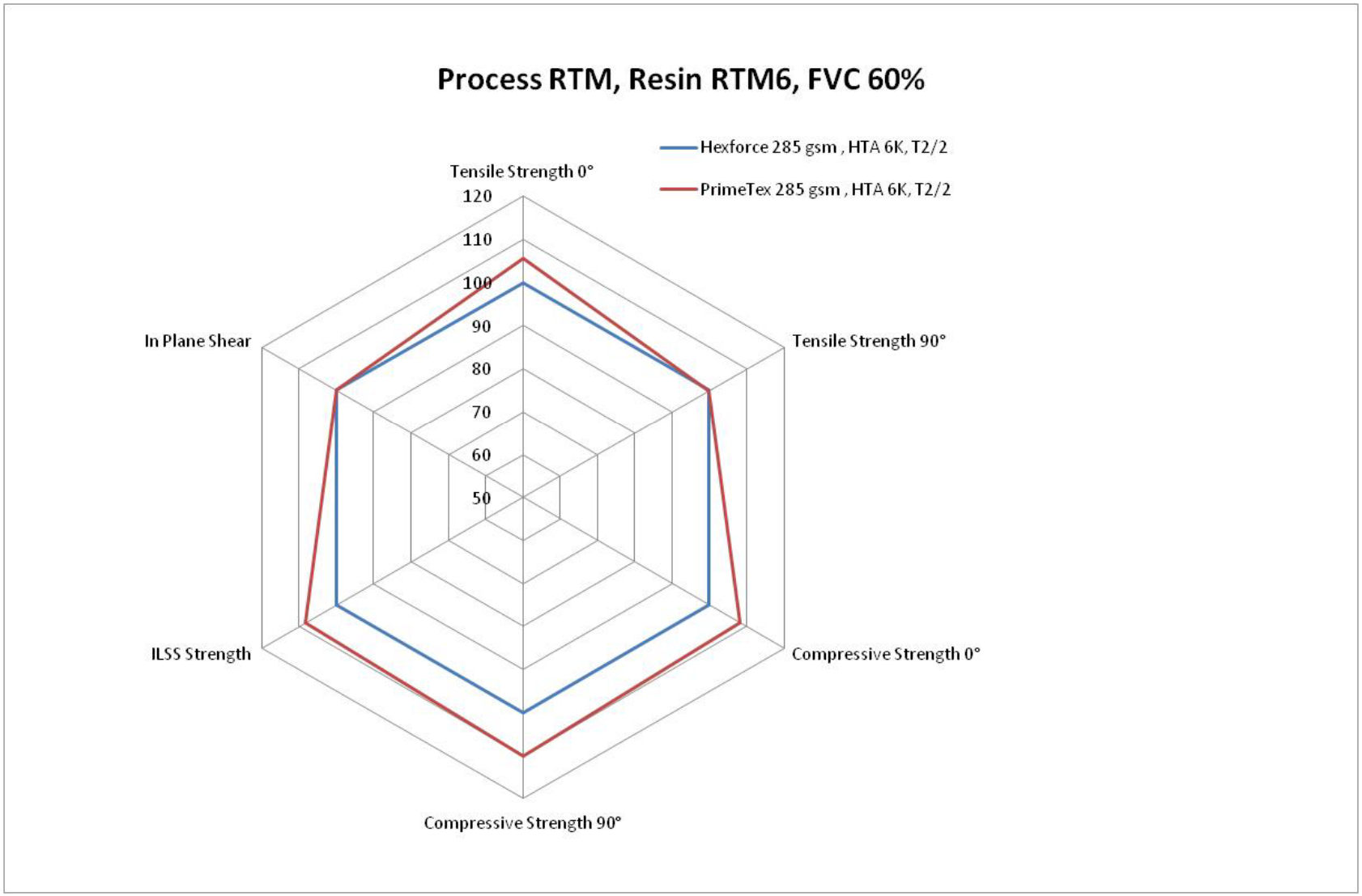


Hexforce® 285 gsm, Twill 2/2, HS6K

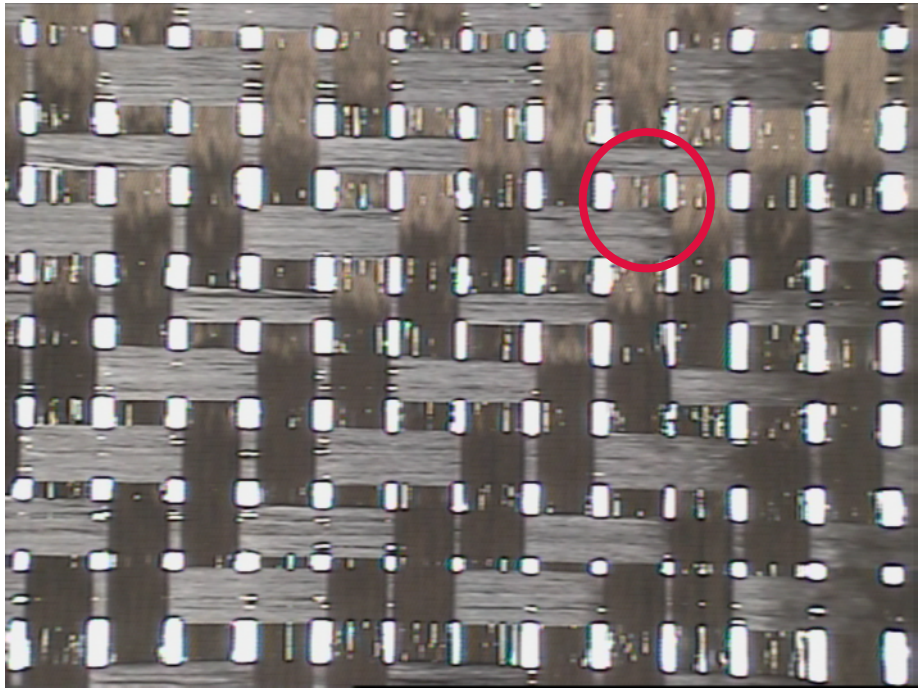


PrimeTex™ 285 gsm, Twill 2/2, HS6K

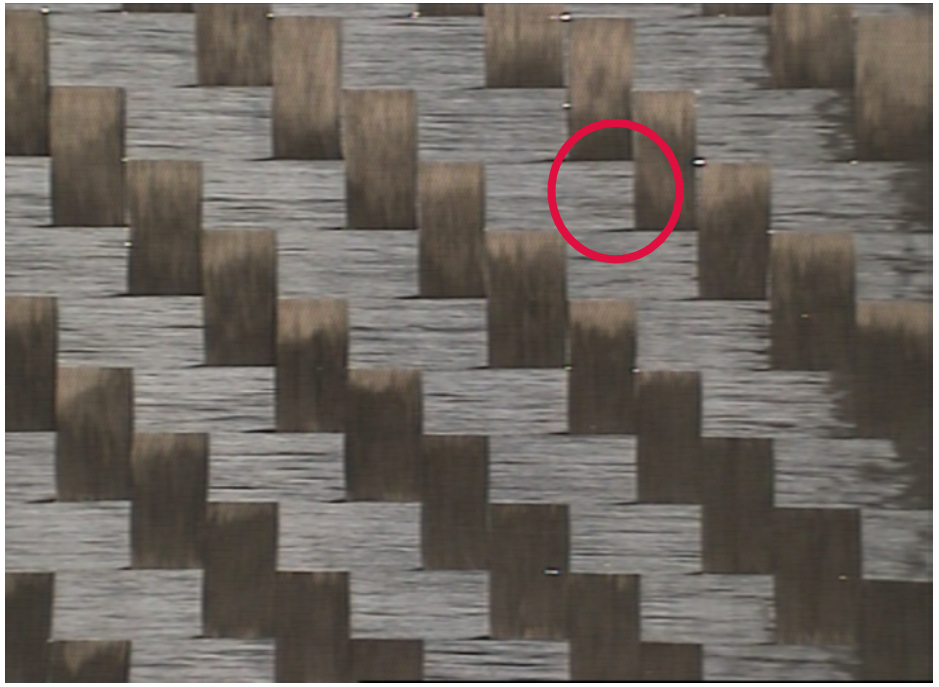
PrimeTex™ High Strength 6K, mechanical properties



PrimeTex™ High Strength 12K, optical properties



Hexforce® 193 gsm, Twill 2/2, HS12K
Open factor: 5%



PrimeTex™ 193 gsm, Twill 2/2, HS12K
Open factor: 0.3%

PrimeTex™ High Strength 12K & 24K

gsm

193

285

300

370

385

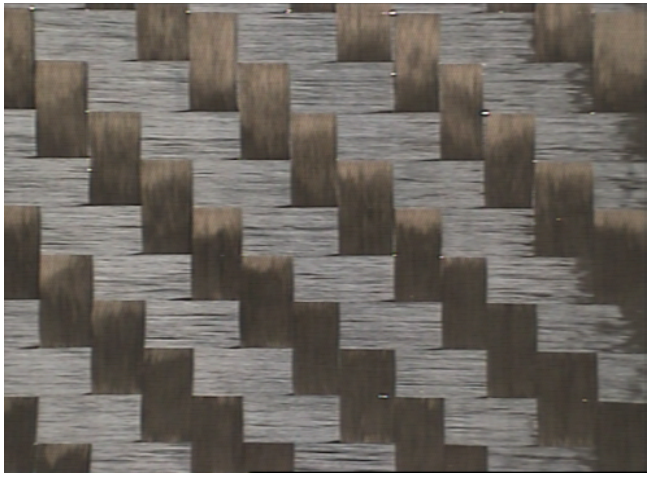
400

500

550

600

700



PrimeTex™12K or 24K flat weaving & spreading

Technology

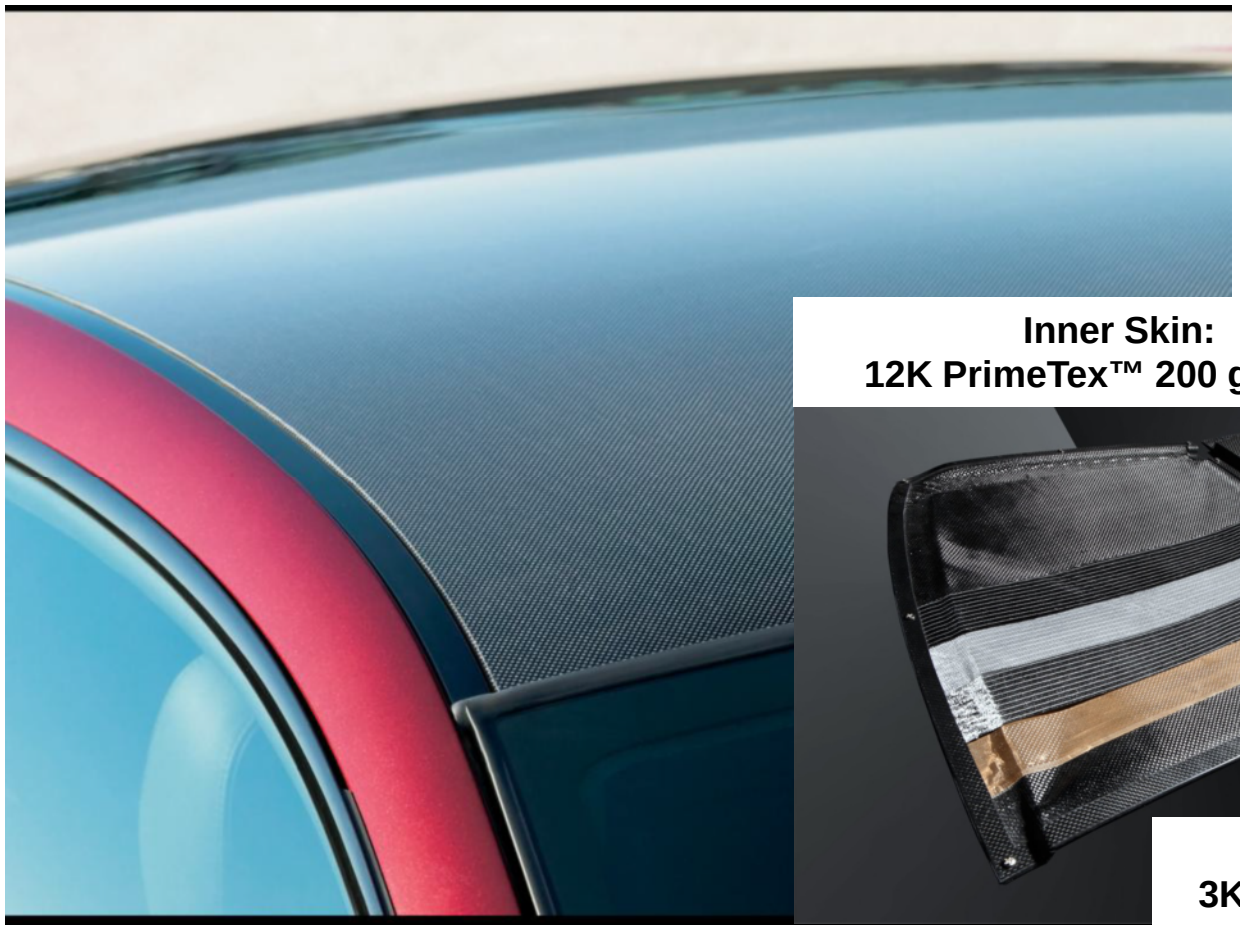
Regular carbon fabric weaving

Commodity

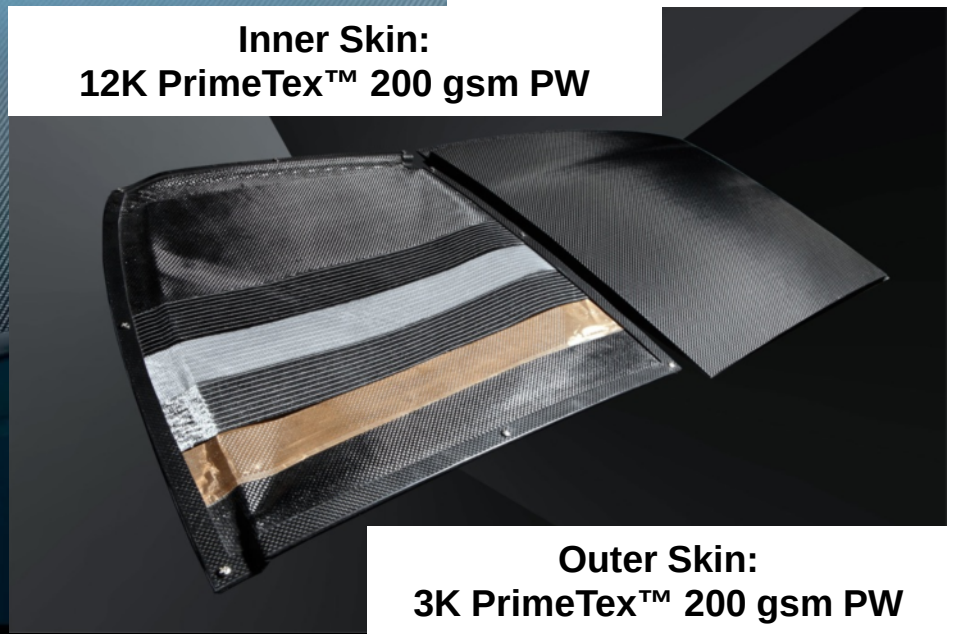
PrimeTex™ advantage for FAW below 400gsm

HEXCEL

PrimeTex™, success stories



Inner Skin:
12K PrimeTex™ 200 gsm PW



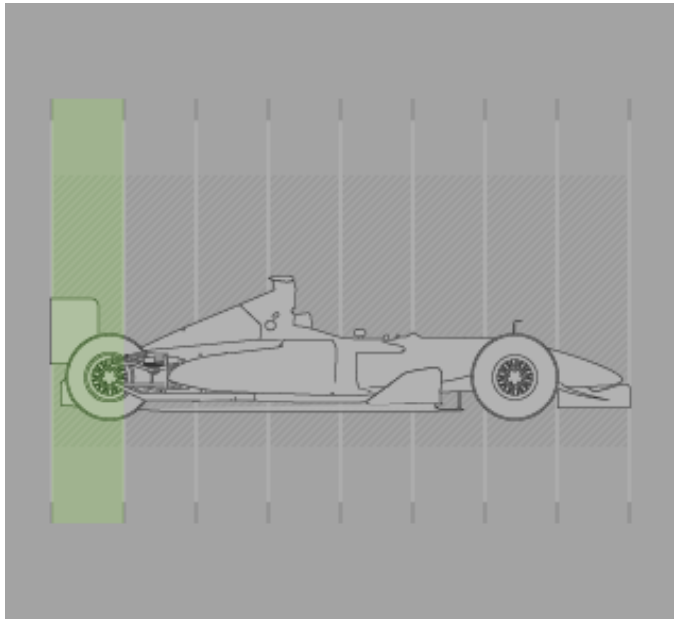
Outer Skin:
3K PrimeTex™ 200 gsm PW

BMW M3/M6 composite roof

PrimeTex™, success stories

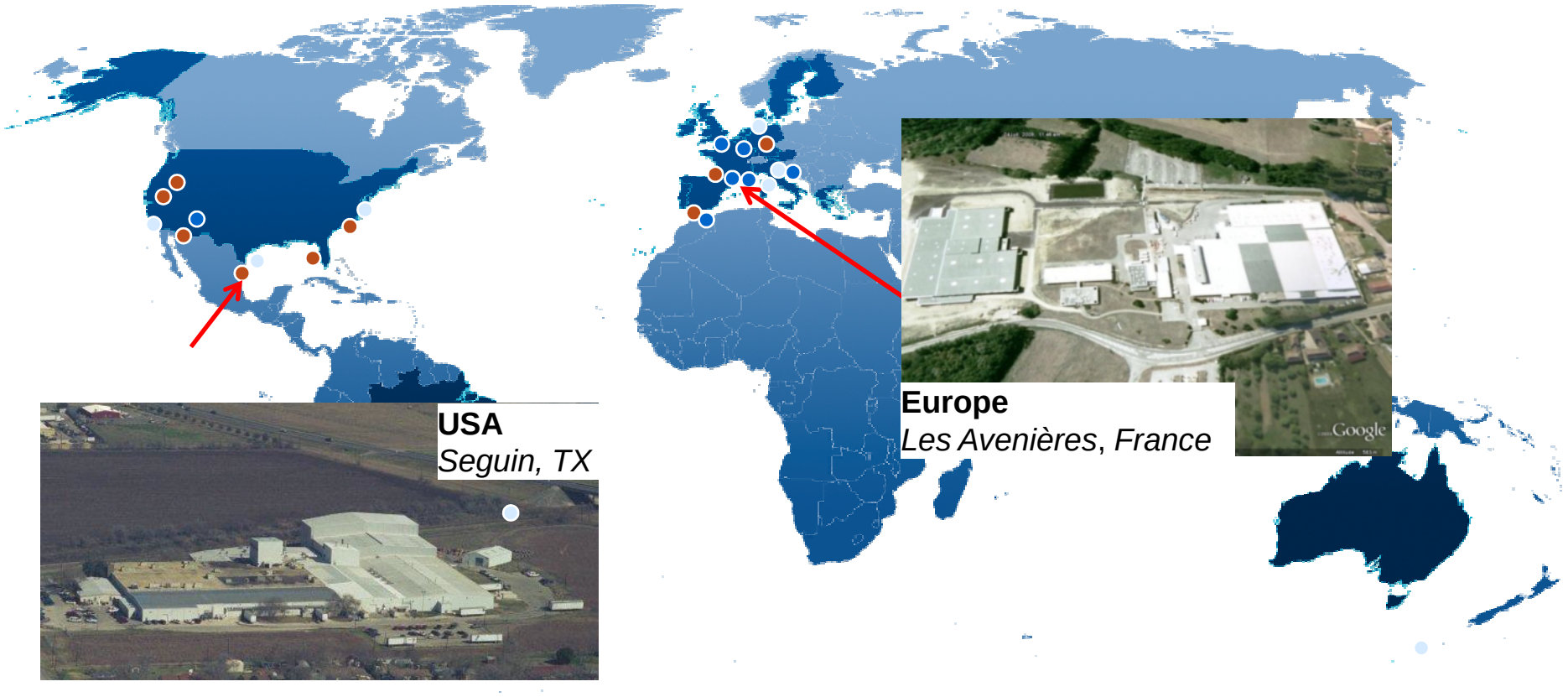
PrimeTex™ with Standard Modulus carbon fiber

PrimeTex™, success stories



PrimeTex™ with High Modulus carbon fiber

Where to find PrimeTex™



USA
Seguin, TX

Europe
Les Avenières, France

Thank You