Industrial
Selector Guide

- HexPly® Prepregs
- HexMC®-i Molding Composite
- HexForce® Reinforcements
- HiMax® Multiaxials
- HexTool® Tooling Material
- Polyspeed® Laminates and Pultruded Profiles

HEXCEL®

Hexcel in Industrial Markets

The Industrial business at Hexcel includes several submarkets such as Automotive, Wind Energy, Marine, and Sports & Recreation. Our customers are challenged to produce lightweight yet strong products efficiently, and Hexcel products make that happen. Our advanced composite materials help reduce CO2 emissions while also promoting greater manufacturing efficiencies. Hexcel is the most integrated composite solutions provider in the industry, experienced at all stages in the composites chain, from carbon fiber and fabrics (glass and carbon) to resin formulation for thermosetting prepregs, laminates and pultruded elements, molding materials, composite tooling, honeycomb and adhesives.

HexPly® Prepregs

Hexcel prepregs provide a tougher, lighter and stiffer alternative to conventional materials. They are specially formulated resin matrix systems that are reinforced with man made fibers such as carbon, glass and aramid. Prepreg is the ultimate composite material. The thermoset resin cures at elevated temperatures, undergoing a chemical reaction that transforms the prepreg into a solid structural material that is highly durable, temperature resistant, exceptionally stiff and extremely lightweight.

HexTool® Tooling Material

HexTool® is Hexcel's composite tooling material that, for the first time, enables the tolerance accuracy achieved with metals to be combined with the extreme lightness of carbon fiber composites. HexTool® molds are easy to repair and the dimensions are simple to modify. This new concept for lightweight, efficient large-scale tools is cost-effective compared with conventional composite tools and metal molds, especially those made from Invar®.

Long tool life, ease of use, and the machinability of cured structures are some of the primary reasons HexTool® is being chosen for the tooling for parts on new generation aircraft worldwide.

HexMC®-i Molding Composite

HexMC®-i is a high performance sheet molding material, suitable for the high volume production of complex shapes and specifically designed for compression molding. With long fiber, and low resin content, HexMC®-i provides better mechanical properties than any other short- or long-fiber molding compound.

The HexMC®-i epoxy system provides short cure cycles, from two minutes at 150°C/ 302°F depending on part thickness. Complex shapes can be achieved and inserts can be integrated in the molding process. This product is particularly beneficial for sports goods, automotive and marine applications, as well as a wide range of industrial components.

HexForce® Reinforcements

Hexcel is the leading manufacturer of woven reinforcements for composites, in glass, carbon and aramid fibers. Woven fabrics are the result of at least 2 threads which are interlaced at 0° (the warp) and 90 (the weft) with the weave style varied according to the required performance. Fabrics are available in a wide range of weights and three main weave styles: plain weave, twill weave and satin weave. Woven fabrics provide strength and stiffness in two directions, resulting in excellent handling characteristics and good drape. It is also possible to mix fibers to provide hybrid fabrics.

HiMax® Reinforcements

HiMax® Multiaxial fabrics also known as Non Crimp Fabrics are layers of unidirectional fiber that are assembled and stitched together. They provide strength and stiffness in multiple directions depending on the controlled orientation of the fibers. The range includes Biaxial, Triaxial, and Quadraxial. These reinforcements provide composites with stiffness and strength and are key products for many industrial markets.

Polyspeed® Laminates

Polyspeed® laminates are fiber-reinforced epoxy resin impregnated materials that are supplied in a cured state. Hexcel manufactures a wide range of pressed laminates made with unidirectional or multidirectional carbon, glass and aramid reinforcements as well as hybrid laminates which combine glass, carbon and aramid fibers to meet specific customer mechanical properties requirements. Being precured, laminates are chemically stable and have established mechanical properties, making them ready-to-use for compounding with foam or adhesives.

Laminates are used in layer constructions and absorb physical impacts in the final products such as skis, snowboards, floor panels and many other industrial applications.

Polyspeed® Pultruded Carbon Profiles

Pultrusion is a continuous process for the manufacture of composite profiles. Hexcel's Vert-Le-Petit site pioneered pultruded profiles manufactured with unidirectionnal and orientated fiber, mainly with carbon fibers, and offers a wide variety of pultruded sections including:

- Rods from 2 to 32mm diameter
- Flat sections from 5 to 100mm wide, with 0.5 to 10mm thickness
- Tubes from 4 to 100mm diameter and 1 to 10mm thickness (including telescopic serial).
- Specific profile sections can also be developed

Polyspeed® pultruded profiles are made from either carbon fiber (standard, intermediate and high modulus), glass, quartz, basalt or other fibers as specified. The profile matrix is a Hexcel formulation based on epoxy and polyurethane thermoset resins allowing applications in the most severe environments up to 100°C as standard, and up to 200°C in certain specifications.

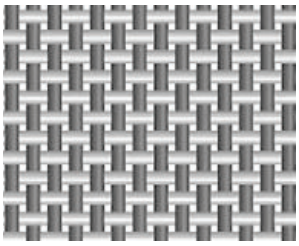
Hexcel pultruded profiles are used in many industrial applications including sports good, robotics, medical, building, telescope monopods and tripods.

Reinforcement Styles

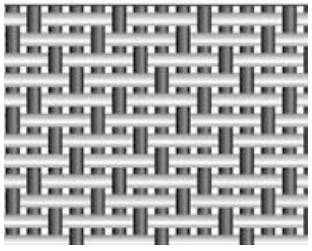
HexForce® Reinforcements

Woven Fabrics
Fabrics consist of at least two threads which are woven together: the warp and the weft. The weave style can be varied according to crimp and drapeability. Low crimp gives better mechanical performance because straighter fibers carry greater loads; a drapeable fabric is easier to lay up over complex forms.

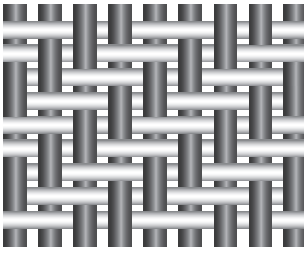
Main Weave Styles



PLAIN WEAVE -
Low drapeability/high crimp



SATIN WEAVE (4, 5, 8, 11) -
Good drapeability/low crimp

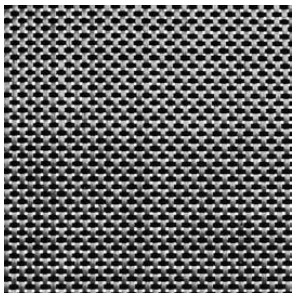


TWILL WEAVE (2/1, 3/1, 2/2) -
Average drapeability/ average crimp

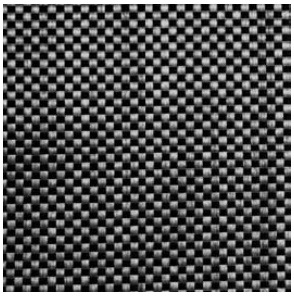
PrimeTex® Reinforcements

PrimeTex® is a range of carbon fabrics processed for a smooth, closed weave and uniform cosmetic appearance. The filaments in each tow are spread out, creating a thinner and more closely woven fabric, providing better mechanical properties and less porosity in a composite. PrimeTex® fabrics can also lower the mass in a structure when lighter weight is a key requirement.

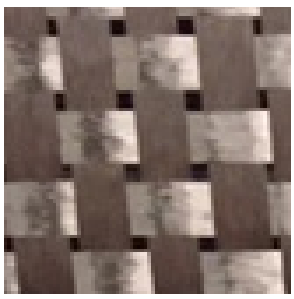
PrimeTex® gives a clear visual benefit to the finished product, enhances the mechanical properties in a laminate and allows high K tow fibers to be used, for the lowest areal weight. The PrimeTex® range is available with HR, IM and HM fiber, from 3K up to 24K. PrimeTex® is ideal for Automotive, Recreation (skis, bikes) and marine applications (hulls and spars).



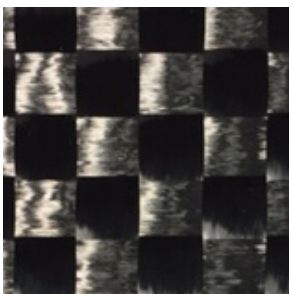
HexForce® 43199 UE1250 -
Fiber coverage: 93%



PrimeTex® 43199 UE1250 S -
Fiber coverage: 99%

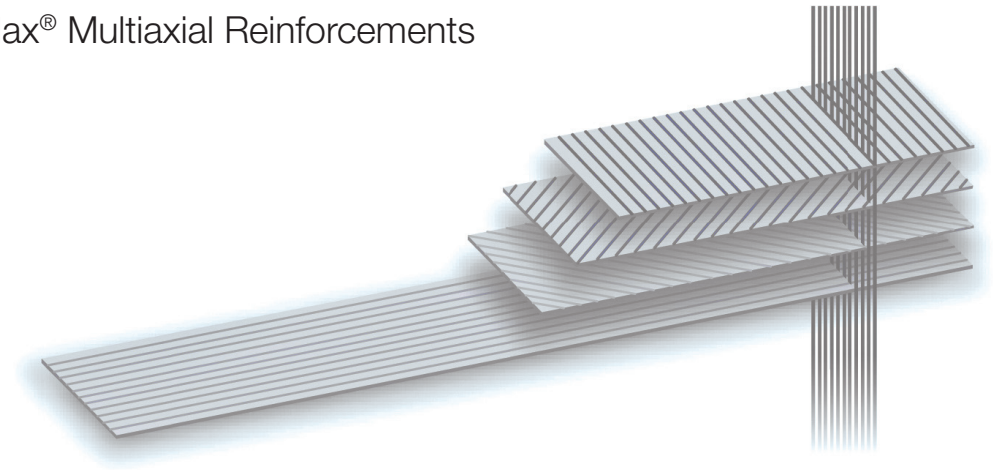


HexForce® 48192 C 1270 -
Fiber coverage: 96%



PrimeTex® 48192 C 1270 S -
Fiber coverage: 99.5%

HiMax® Multiaxial Reinforcements



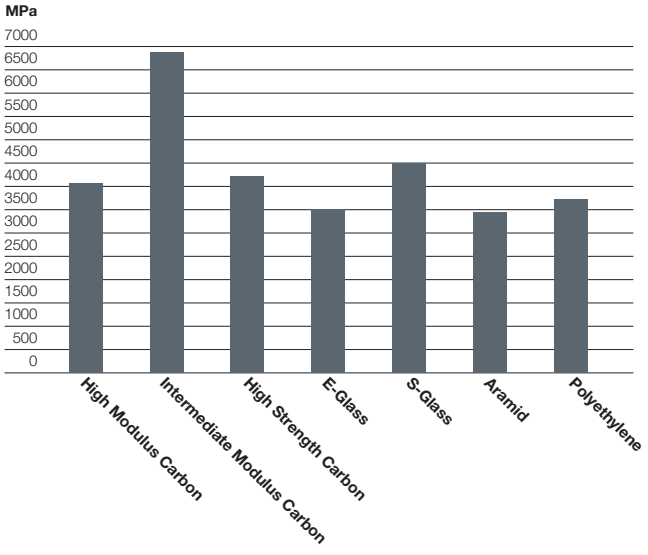
Multiaxial Fabrics
Hexcel's HiMax® multiaxial reinforcements are a unique concept non-crimp technology for industrial applications that provide strength and stiffness exactly where required, as a result of the preplacement of oriented unidirectional tapes joined by a novel stitching technology. HiMax® allows great flexibility of fiber orientation with previously unknown and still unmatched width adjustment capabilities.

Thick materials can be manufactured using thin plies, providing customers with a cost effective solution that reduces production time. This new technology can accommodate a broad range of fibers, with total freedom regarding ply stack sequence and orientation. Using HiMax® technology Hexcel is able to make light single ply reinforcements from 100g/m^2 - 2.3oz/yd^2 that are balanced and provide full fiber coverage, at competitive prices.

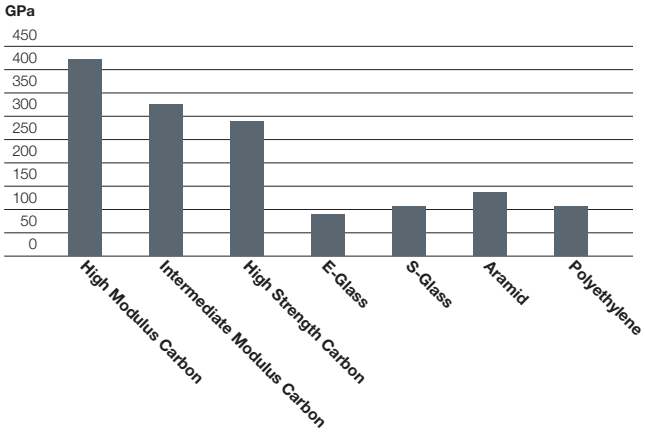
Fiber Properties

Fiber Properties
Fiber reinforcements provide composites with mechanical performance: excellent stiffness and strength, as well as good thermal, electric and chemical properties, while offering significant weight savings over metals. The range of fibers is extensive. The graphs below highlight the main criteria for fiber selection.

Tensile Strength

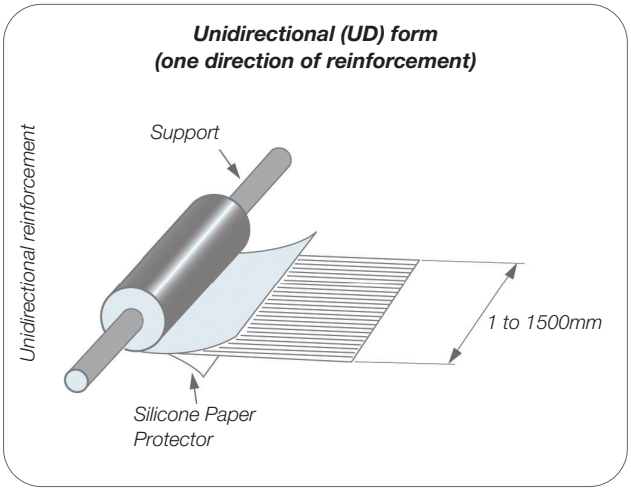


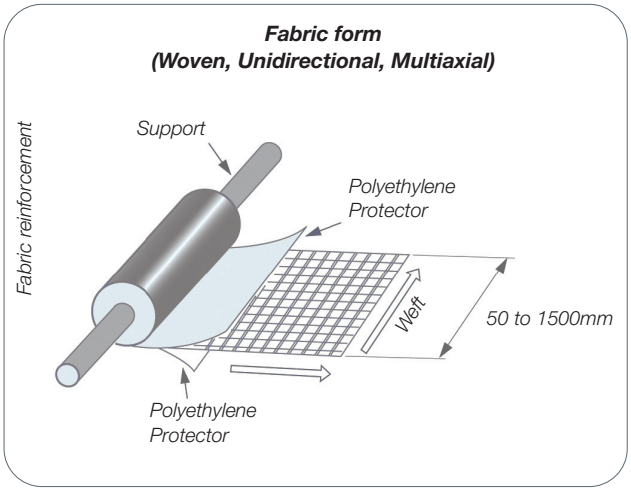
Tensile Modulus



Prepreg Properties

What is a prepreg?
A prepreg consists of a combination of a matrix (or resin) and fiber reinforcement. It is ready to use in the component manufacturing process. It is available in:





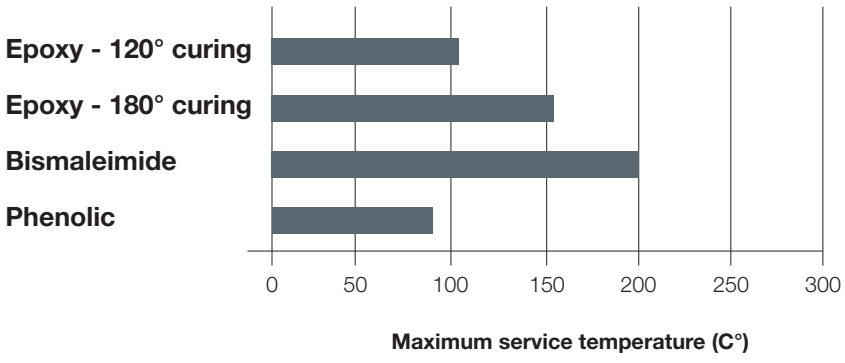
What is the role of the matrix?
The role of the matrix is to support the fibers and bond them together in the composite material. It transfers any applied loads to the fibers, keeps the fibers in their position and chosen orientation. The matrix also gives the composite environmental resistance and determines the maximum service temperature of a prepreg. When selecting prepregs the maximum service temperature is one of the key selection criteria for choosing the best prepreg matrix.

A prepreg matrix is:
A formulation of many components: *Resins, curing agents, toughners, fire retardants, accelerators.*

Different chemistries available depending on end-use: *Epoxy, Phenolic, BMI, Cyanate Ester*

All thermosetting chemistries

What are the prepreg matrix properties?



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Transport

Sports Equipment

Wind Energy

Tooling

HexPly® Matrix

HexPly® Resin System	Dry T_g Onset (DSC) °C (°F)	Typical Cure Cycle		Cure Process		Self Adhesive	Attributes	Flow		Self Extinguishing	Outlife at Room Temperature (Days)	Storage at -18°C (0°F) months	Market
		Temp °C (°F)	Time (mins)	Autoclave/ Press	Vacuum Only			Controlled	High				
Epoxy													
M9.X	125 (255)	120 (250)	30	X	X		Base line resin, various tack levels available		X		42	18	Wind energy, Automotive, Marine, General Industrial
M901	175 (350)*	130 (265)	10	X			High T_g, fatigue and mechanical performance		X		105	18	Automotive, General Industrial
M10E	115 (240)	120 (250)	30	X	X		Flexible cure (85°C-150°C)		X		60	18	Sporting Goods, General Industrial, Automotive, Marine
M10R	120 (250)	120 (250)	60	X	X		Base line resin long shelf life		X		60	18	Marine, Automotive, General Industrial
M34	80 (180)	75 (165)	480	X	X	X	Low temperature cure. FST behavior	X		X	10	12	Rail and Marine
M35-4	140 (285)	135 (275)	90	X			Flexible cure	X			60	12	High Performance Cars / Sporting Goods / Bike
M47	130 (265)	120 (250)	90	X			Structural	X		X	30	12	High Performance Cars
M49	105 (220)	120 (250)	90	X	X		Aesthetic		X		30	12	Automotive, Sporting Goods, Carbon Look, General Industrial
M77	125 (255)	150 (300)	2	X	X		Extra fast cure	X			42	18	Automotive, Sporting Goods, General Industrial
M77CS	130 (265)	140 (285)	3	X			Fast cure, transparency, surface quality	X			42	18	Automotive, Carbon Look
M77HF	130 (265)	150 (300)	3	X	X		Quick cure. Hot de-mold		X		30	12	Sporting Goods, General Industrial
M78.1	125 (255)	130 (265)	6	X	X		Very fast cure, excellent adhesion, environmental friendly	X			14	18	Sporting Goods
M79	95 (200)	90 (195)	130	X	X		Low temperature cure, low exotherm	X			42	18	Wind Energy, Marine, Other industrial applications
M81	200 (390)	135 (275)	180**	X			Tough	X			14	12	High Performance Cars

*All listed resin systems above may be used with Hexcel's range of reinforcement fabrics such as woven and multiaxial fabrics in carbon, glass and aramid fibers. Please contact Hexcel for more information. *postcure of 120min @150°C required ** = plus post cure*

Polyspeed® Laminates

Type	Laminate Weight Unground (g/m^2)	Fabric Weight (g/m^2)	Reinforcement	Weight Rate (g/m^2)		Thickness Both Sides Ground (mm)	Width (mm)	Resin/T_g (°C)	Mechanical	
				Warp	Weft				Tensile Strength 0° Mpa	Tensile Modulus 0° Gpa
R	1151	840	R84	840	0	0.5 ± 0.05	38-1240	Epoxy / 125°	1100 ± 165	42 ± 6.3
R	1740	1200	R120	1200	0	0.8 ± 0.05	38-1240	Epoxy / 125°	1100 ± 165	41 ± 6.2
R-Combi	1883	1337	R94 LT397	1300	25	0.9 ± 0.05	38-1240	Epoxy / 125°	1050 ± 158	39 ± 5.9
EV	825	470	470R	372	90	0.4 ± 0.05	38-1240	Epoxy / 125°	560 ± 84	27 ± 3.8
EV	1210	750	750R	504	240	0.6 ± 0.05	38-1240	Epoxy / 125°	450 ± 68	20 ± 3
EV	1541	2 x 470	2x470R	744	180	0.8 ± 0.05	38-1240	Epoxy / 125°	570 ± 86	25 ± 3.7
Grid	682	566	551GI	240	300	0.75	38-1240	Epoxy / 125°	240 ± 36	11.5 ± 1.7

R= UD glass fiber, R-kombi= UD glass fiber + woven fabric, EV= bidirectional reinforcement, GRID= woven grid reinforcement

HexTool® Tooling Material

	Dry T_g Onset (DMA) °C (°F)	Typical Cure Cycle		Cure Process		Self Adhesive	Attributes	Flow		Self Extinguishing	Outlife at Room Temperature	Storage at -18°C (0°F) months	Market
		Temp °C (°F)	Time (mins)	Autoclave/ Press	Vacuum Only			Controlled	High				
HexTool® M61	275 (530)	190 (375)	240**	Post cure 16h at 220°c		X	BMI				20	12	Tooling - 180° C part cure cycle
HexTool® M81	220 (430)	125 (255)	360**	After post cure 2h at 205°c		X	Epoxy				20	12	Tooling - 120° C part cure cycle and fast prototyping for any composite parts

*** Plus post cure*

HexMC®-i Molding Concept

	Dry T_g Onset (DMA) °C (°F)	Typical Cure Cycle		Cure Process		Self Adhesive	Attributes	Flow		Self Extinguishing	Outlife at Room Temperature (days)	Storage at -18°C (0°F) months	Market
		Temp °C (°F)	Time (mins)	Autoclave/ Press	Vacuum Only			Controlled	High				
HexMC®-i M77	120 (250)	150 (300)	2	X				X			42	18	Automotive, Sporting Goods, General Industrial
HexMC®-i M81	210 (410)	180 (355)	30**	X				X			14	12	Automotive, Sporting Goods

** Higher T_g can be obtained with post cure cycle*

*** Plus post cure*

HS Carbon Fiber Reinforcements

Weight (gsm)	Style	PrimeTex® Quality	Weave	Weight Rate		Fiber Count (Yarns/cm)		Reinforcement Yarn		Thickness (mm)
				Warp	Weft	Warp	Weft	Warp	Weft	
Balanced Fabrics - High Strength Fibers										
98	*G0801*		PLAIN	50	50	6.7	6.7	1K HS	1K HS	0.09
100	*43098*	X	PLAIN	50	50	2.3	2.3	3K HS	3K HS	0.09
120	*41120*		PLAIN	50	50	9	9	1K HS	1K HS	0.12
160	*43161*	X	PLAIN	50	50	4	4	3K HS	3K HS	0.16
160	*43162*	X	TWILL 2x2	50	50	4	4	3K HS	3K HS	0.16
193	*48192*	X	PLAIN	50	50	1.2	1.2	12K HS	12K HS	0.20
193	*48194*	X	TWILL 2x2	50	50	1.2	1.2	12K HS	12K HS	0.20
200	*43199*	X	PLAIN	50	50	5	5	3K HS	3K HS	0.20
200	*43200*	X	TWILL 2x2	50	50	5	5	3K HS	3K HS	0.20
245	*43245*	X	TWILL 2x2	50	50	6	6	3K HS	3K HS	0.25
285	*G1174*		TWILL 4x4	50	50	7	7	3K HS	3K HS	0.29
285	*43285*		TWILL 2x2	50	50	7	7	3K HS	3K HS	0.29
300	*48302*	X	TWILL 2x2	50	50	1.9	1.9	12K HS	12K HS	0.30
330	*49331*	X	PLAIN	50	50	0.9	0.9	24K HS	24K HS	0.32
370	*48370*	X	TWILL 2x2	50	50	2.4	2.4	12K HS	12K HS	0.38
400	*46402*		TWILL 2x2	50	50	5	5	6K HS	6K HS	0.40
400	*48400*	X	PLAIN	50	50	2.5	2.5	12K HS	12K HS	0.41
600	*48600*		TWILL 2x2	50	50	3.7	3.7	12K HS	12K HS	0.62
660	48661		TWILL 2x2	50	50	4.1	4.1	12K HS	12K HS	0.66

PrimeTex® is a range of carbon fabrics that have been processed for a smooth, closed weave and enhanced uniform appearance.

Unidirectional Fabrics - High Strength Fibers										
175	*43175*		UD PW	96	4	8.4	6.9	3K HS	EC511	0.18
185	*43185*		UD PW	85	15	8.4	4	3K HS	1KHS	0.19
300	*48300*		UD PW	99	1	3.7	3	12K HS	EC511	0.32
530	*48520*		UD	94	6	6.2	4.4	12K HS	EC968	0.55

IM/HM Carbon Fiber Reinforcements

Weight (gsm)	Style	PrimeTex® Quality	Weave	Weight Rate		Fiber Count (Yarns/cm)		Reinforcement Yarn		Thickness (mm)
				Warp	Weft	Warp	Weft	Warp	Weft	
Balanced Fabrics - High Strength Fibers										
200	*46200 W*	X	TWILL 2x2	50	50	4.5	4.5	6K IM7	6K IM7	0.20
280	*46280 W*	X	SATIN 5	50	50	6.5	6.5	6K IM7	6K IM7	0.28
150	48152 ZY	X	TWILL 2x2	50	50	1.7	1.7	HM63	HM63	0.15
200	48200 ZY	X	TWILL 2x2	50	50	2.3	2.3	HM63	HM63	0.20
285	48287 ZY	X	SATIN 5	50	50	3.3	3.3	HM63	HM63	0.28

E Glass Reinforcements

Weight (gsm)	Style	Weave	Weight Rate		Fiber Count (Yarns/cm)		Reinforcement Yarn		Thickness (mm)
			Warp	Weft	Warp	Weft	Warp	Weft	
25	*00106*	PLAIN	50	50	22	22	EC5.5	EC5.5	0.02
48	*01080*	PLAIN	56	44	24	19	EC5 11	EC5 11	0.04
70	*02112*	PLAIN	52	48	16	15	EC7 22	EC7 22	0.05
86	*00235*	PLAIN	49	51	12	12.5	EC9 34	EC9 34	0.06
105	*00220*	4H SATIN	51	49	24	23	EC7 22	EC7 22	0.08
105	*02116*	PLAIN	51	49	24	23	EC7 22	EC7 22	0.08
125	*01510*	PLAIN	65	35	11.5	6.3	EC9 34x2	EC9 68	0.09
125	*01522*	PLAIN	53	47	9.6	8.5	EC9 34x2	EC9 34x2	0.09
160	*01717*	PLAIN	52	48	11.8	10.7	EC9 68	EC9 68	0.12
162	*01039*	TWILL 2x2	51	49	11.8	11.5	EC9 68	EC9 68	0.12
202	*01035*	TWILL 2x2	50	50	14	14	EC9 68	EC9 68	0.15
202	*07628*	PLAIN	59	41	17	11.8	EC9 68	EC9 68	0.15
202	*01266*	PLAIN	60	40	8.9	6	EC9 136	EC9 136	0.15
204	*01184*	PLAIN	51	49	7.4	7.2	EC9 68x2	EC9 136	0.15
206	*00471*	PLAIN	51	49	7.4	7.2	EC9 68x2	EC9 68x2	0.15
290	*01202*	TWILL 2x2	50	50	7	7.2	(EC9 68)x3	EC9 204	0.23
290	*01203*	PLAIN	50	50	7	7.2	(EC9 68)x3	EC9 204	0.23
300	*07581*	8H SATIN	51	49	22	21	EC9 68	EC9 68	0.23
300	07781	8H SATIN	52	48	23	21	EC 66	EC66	0.23
390	*01113*	TWILL 2x2	53	47	5.9	6.6	(EC9 68)x5	(EC9 136)x2	0.30
600	*01038*	TWILL 2x2	50	50	7.3	7.3	(EC9 136)x3	(EC9 136)x3	0.52
600	01137	8 SATIN	50	50	11.2	11.2	(EC9 136)x2	(EC9 136)x2	0.52
Woven Unidirectional									
190	*1022*	UD 4H SATIN	80	20	22	10.5	EC9 68	EC9 34	0.14
290	*1543*	UD 4H SATIN	90	10	19	11.8	EC9 68 x2	EC7 22	0.22
315	*1031*	UD 4H SATIN	87	13	19.5	11	EC9 136	EC9 34	0.24
430	*1017*	UD PLAIN	90	10	5.7	6.3	(EC9 136)x5	EC9 68	0.33

Finish for E Glass Fabrics

Matrix	Description	Epoxy	Polyester	Vinyl Ester	Phenolic
Finish					
TF 950 - Z 6040	Epoxy Silane	X	X	X	
TF 970	Amino Silane	X	X	X	
A 1100	Amino Silane	X			X
TF970 CLEAR	Amino Silane	X	X	X	

Specialties

Weight (gsm)	Style	Weave	Weight Rate		Fiber Count (Yarns/cm)		Reinforcement Yarn		Thickness (mm)
			Warp	Weft	Warp	Weft	Warp	Weft	
Polyamide Peel Ply									
83	*T0470N*	PW	58	42	19	15	PA66 235	PA66 235	0.06
100	*T0098*	PW	54	46	22	18.5	PA66 235	PA66 235	0.06
Aesthetic Glass Fabrics									
202	*1035 TEXALIUM®**	TWILL 2X2	50	50	14	14	EC9 68	EC9 68	0.15
290	*1202 TEXALIUM®**	TWILL 2X2	50	50	7	7.2	(EC9 68)x3	EC9 204	0.23
Injectex® E Glass Fabrics									
295	*21186*	TWILL 2X2	50	50	22.2	5.5	EC9 68	EC9 68x4	0.22
315	*EB315*	TWILL 2X2 POWDERED	50	50	22.2	5.5	EC9 68	EC9 68x4	0.22
400	*21180*	3X / FORMABLE	50	50	14.8	14.8	EC9 68x2	EC9 68x2	0.31
420	*EF420*	3X / FORMABLE POWDERED	50	50	14.8	14.8	EC9 68x2	EC9 68x2	0.31
1000	*21156*	3X / FORMABLE	51	49	16.3	15.5	EC13 300	RO320	0.77
1030	*E1030*	3X / FORMABLE POWDERED	51	49	16.3	15.5	EC13 300	RO320	0.77
Injectex® Carbon Fabrics									
600	*GF600 1000*	3X / FORMABLE	50	50	7.4	7.4	6K HS	6K HS	0.60
630	*GF630 1000*	3X / FORMABLE POWDERED	50	50	7.4	7.4	6K HS	6K HS	0.60
Aramid Carbon Hybrids									
170	*73172*	PLAIN	37	37	3.4	3.4	3K HS	AR HM 1210	0.19
			13	13	1.7	1.7	AR HM 1210	3K HS	
170	*G0882*	TWILL 2x1	37	22	3.3	1.8	3K HS	3K HS	0.17
			13	28	1.8	3.3	AR HM 1210	AR HM 1210	
210	*73210*	TWILL 2x2	22	22	2.2	2.2	3K HS	3K HS	0.22
			28	28	4.4	4.4	AR HM1210	AR HM1210	

** TEXALIUM® : glass fabrics aluminum coated on one side*

Powdering for Preforming & Stabilization

Ref	Compatibility	Storage at Room Temperature	Preforming	Applicable for	Injection Temperature	Curing Temperature of Resin System
HP03	*PU & Epoxy*	1 year	Starting at 80°C, Recommended 100°C	LRI	<45°C	>50°C
E01	*Epoxy*	Up to 1 year	Starting at 80°C, Recommended 100°C	RTM/LRI	No restriction	Any

Powdering: all fabrics can be epoxy powdered on 1 or 2 sides in order to facilitate preforming and dimensional stabilization

Aramid Fabrics

Weight (gsm)	Style	Weave	Weight Rate		Fiber Count (Yarns/cm)		Reinforcement Yarn		Thickness (mm)
			Warp	Weft	Warp	Weft	Warp	Weft	
175	*20967*	PLAIN	51	49	6.7	6.5	HM 1210	HM 1210	0.2
175	*20968*	TWILL 2x2	51	49	6.7	6.5	HM 1210	HM 1210	0.2
175	*20914*	4H SATIN	51	49	6.7	6.5	HM 1210	HM 1210	0.2
320	*21071*	5H SATIN	51	49	6.3	6.2	HM 2400	HM 2400	0.4

HiMax® Multiaxial Reinforcements

Carbon Fiber Multiaxials

Available in a range of fiber types from 3k to 50k including PAN and Pitch fibers. Fabric weights from 50gsm up to 1600gsm can be produced with fabric widths from 25mm through to 1600mm.

- Unidirectionals, (Stitched, Heat Set Woven, Infusion and Bonded)
- +/- 22 Biaxials, (Standard and Lightweight)
- +/- 60 lightweight carbon multiaxials in 75gsm
- +/- 45 Biaxials, (Standard, Ultra lightweight, High Drape and Hybrid)
- 0/90 Biaxials, Triaxials, and Quadraxials. (Standard, Unbalanced, Heavyweight, Warp, Weft and Hybrid)

Glass Multiaxials

Available in a range of fabric weights from as low as 250gsm to 6000gsm and a variety of different fabric widths from 25mm to 2540mm.

- Unidirectionals (Stitched, Heat Set Woven and Infusion)
- +/-45 Biaxials (Standard, Combination, High-drape and Hybrid)
- 0/90 Biaxials (Standard, Combination, High-drape and Hybrid)
- Triaxials (Warp, Weft, Hybrid)
- Quadraxials (Standard and Mesh)

Aramid Multiaxials

Available in a range of fabric weights from as low as 160gsm to 600gsm and a variety of widths from 250mm to 2540mm.

- Standard +/- 45
- Hybrid +/- 45
- Hybrid 0/90

Hybrid Fabrics / Natural Fibers

A range of Carbon / Glass, Aramid / Glass hybrid fabrics can be supplied, as well as natural fibers such as Flax.

Fabrics For Infusion

Our Infusion fabrics have been specially developed to ensure rapid and consistent infusion rates during production. Additional features include:

- Infusion fabrics that incorporate a core manufactured from polypropylene, polyester, natural fibre and glass fabrics
- Multi-stack fabrics ideal for infusing large monolithic structures in fewer layers

Recycled Fabrics

- reForm Fabric

DPA Fabrics

HiMax® DPA (Dot Pattern Adhesive) fabrics are pre-tacked for ease of laying up multiple fabrics in preparation for infusion. Designed to provide the optimal level of tack while minimizing additional weight, DPA fabrics eliminate the need to apply spray-on adhesives to the fabric surface. This minimizes the risk of inconsistent application, and in turn reduces issues with restricted resin flow, contamination and excess weight. HiMax® DPA fabrics have a controlled and consistent level of adhesive applied by machine in dots across the whole fabric, typically weighing just 3g/m2. This enables manufacturers to simply unroll and apply the HiMax® fabric to the mold, add a layer of core material or other fabric layers, and reposition if desired, before introducing resin. The spacing and spread of the adhesive has been optimized to reduce interference with the resin flow. The health and safety benefits are clear: solvent-based adhesives are no longer being sprayed randomly in the working environment.

Notes

Hexcel Product Family

HexTow®
Carbon Fiber

HexFlow®
Resins

HexMC®-i Molding Composite

HexForce®
Reinforcements

Polyspeed®
Laminates

HexWeb®
Honeycomb Core

HiTape®
Advanced
Reinforcements

Modipur®
Polyurethane

HexWeb®
Engineered Core

HexPly®
Prepregs

HexBond®
Adhesives

HexTool®
Tooling Material

HiMax®
Multiaxial
Reinforcements

HexAM®
Additive
Manufacturing

For more information

Hexcel is a leading worldwide supplier of lightweight composite materials to aerospace and industrial markets. Our comprehensive range includes:

- HexTow® carbon fibers
- HexForce® reinforcements
- HiMax® multiaxial reinforcements
- HexPly® prepregs
- HexAM™ additive manufacturing
- HexMC®-i molding compounds
- HexFlow® RTM resins
- HexBond® adhesives
- HexTool® tooling materials
- HexWeb® honeycomb
- Acousti-Cap® sound attenuating honeycomb
- Engineered core
- Engineered products
- Polyspeed® laminates

For worldwide sales office telephone numbers and a full address list, please go to:

http://www.hexcel.com/contact

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