

FABRICS & BAGGING

This comprehensive selection of materials from the biggest names in the industry offers solutions for the construction of large, lightweight molds and production parts.

62-63

Fiberglass Cloth

64

Kevlar™ Cloth

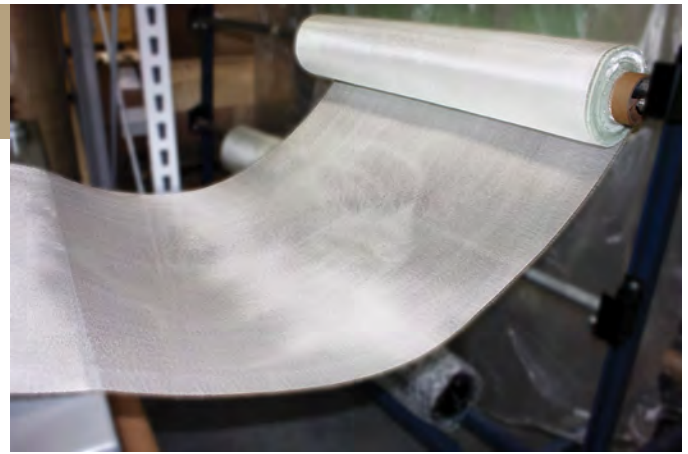
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Carbon Fiber Cloth

66

Mia Vacuum Bagging Supplies

FIBERGLASS CLOTH



Used to construct laminate plastic parts and tooling with epoxy and polyester resins, Freeman fiberglass fabrics are the finest quality materials manufactured by BGF and are compatible with both epoxy and polyester resin systems. Available by the yard (unless otherwise noted) and in full rolls.

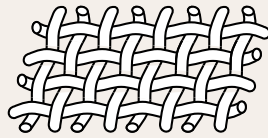
Specifications

Style	Weight (oz./sq. yd.)	Weave	Thickness (inches)	Yarn Desc. (Warp)*	Yarn Desc. (Fill)*	Yarns/In. (Ends x Picks)	Breaking Strength Warp (lb./in.)	Breaking Strength Fill (lb./in.)	Finish
120	3.12	4 HS	0.005	ECD 450 1/2	ECD 450 1/2	60 X 58	105	87	504 Volan
1522	3.64	Plain	0.006	ECG 150 1/2	ECG 150 1/2	24 X 22	65	60	504 Volan
3733	5.75	Plain	0.008	ECG 37 1/0	ECG 37 1/0	18 X 18	150	115	504 Volan
7533	5.90	Plain	0.009	ECG 75 1/2	ECG 75 1/2	18 X 18	110	100	504 Volan
2532	7.00	Plain	0.011	ECG 25 1/0	ECG 25 1/0	16 X 14	150	100	504 Volan
7532	7.10	Plain	0.010	ECG 75 1/3	ECG 75 1/3	16 X 14	135	100	627 Silane
7725	8.50	2x2 Twill	0.010	ECG 75 1/0	ECG 75 1/0	54 X 18	-	-	504 Volan
7725 Black	8.70	2x2 Twill	0.010	ECG 75 1/0	ECH 25 1/0	54 X 18	-	-	A454
1581	8.80	8 HS	0.010	ECG 150 1/2	ECG 150 1/2	57 X 54	198	175	504 Volan
7781	8.71	8 HS	0.009	ECDE 75 1/0	ECDE 75 1/0	57 X 54	242	231	504 Volan
7500	9.64	Plain	0.015	ECG 37 1/2	ECG 37 1/2	16 X 14	235	215	504 Volan
7544	18.23	2 End Plain	0.021	ECG 37 1/2	ECG 37 1/4	27 X 14	450	390	504 Volan
7587	20.10	Mock Leno	0.030	ECG 37 1/2	ECG 37 1/2	39 X 21	420	215	504 Volan
1597	38.00	Triple Plain	0.039	ECG 37 1/4	ECG 37 1/4	30 X 30	700	600	504 Volan

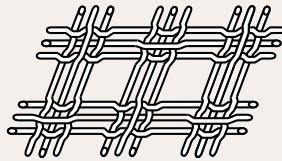
*E = E Glass C = Continuous filament D = 5 micron diameter DE = 6 micron diameter G = 9 micron diameter H = 10 micron diameter K = 13 micron diameter

Weave Types

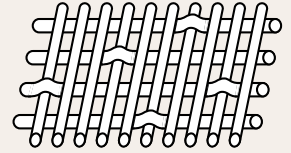
Plain – The warp (length-wise) and fill (cross-wise) yarns cross over and under each other. This weave has the maximum number of interlacings, the most crimp, and the most stability. It is excellent for use in flat panel laminates.



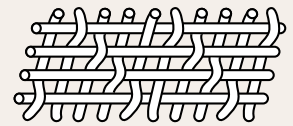
Mock Leno – The yarns run in groups in both warp and fill, locking each other in place at the interlacings. This style gives maximum thickness, good dimensional stability and medium-stiff drapability. Excellent in tooling applications.



Satin – The warp yarn crosses over four or more fill yarns, under one, over four, etc. Very drapable, it conforms well to contoured surfaces in manufactured parts. Often used to reinforce plastics due to high bidirectional strength.



Triple Plain – This special weave features very good drapability and conforms readily to contoured plains.



3 oz. Fiberglass Cloth (#120)

This fiberglass cloth is tightly woven and has a soft, smooth surface, making it ideal for demanding applications where print-through must be minimized or avoided. Commonly used in aerospace and other high-quality fabrications, this cloth conforms easily to contoured surfaces and compound curves.

SKU	Weave	Width	Full Roll Length (yd.)
054152	4 HS	38"	500

4 oz. Fiberglass Cloth (#1522)

This lightweight fiberglass cloth works well for most light-duty applications where a clear wet-out is required. Sometimes referred to as "deck cloth", it is popular in the construction of lightweight models, RC aircraft, surfboards, sailboards, and canoes. It is frequently used as a surfacing fabric to stop print-through when backed by layers of heavier fabric in molded parts.

SKU	Weave	Width	Full Roll Length (yd.)
054096	Plain	50"	125

6 oz. Fiberglass Cloth (#3733)

3733 is a flexible fabric that wets-out transparently and is well suited to a wide range of lightweight, general-purpose applications including laminating, reinforcing and sheathing/waterproofing. It is also widely used in boat building, cedar strip canoes, and lightweight repairs.

SKU	Weave	Width	Full Roll Length (yd.)
054093	Plain	38"	125

6 oz. Fiberglass Cloth (#7533)

This fabric is well suited to various lightweight, general-purpose applications including small craft boat building, reinforcing, sheathing/waterproofing, and lightweight tooling.

SKU	Weave	Width	Full Roll Length (yd.)
054089	Plain	38"	125
054087	Plain	50"	125

FIBERGLASS CLOTH CONTINUED

7 oz. Fiberglass Cloth (#2532)

Commonly referred to as “boat cloth” because of its wide range of marine construction, this easy-to-use, medium-weight cloth is ideal for waterproofing and repair applications.

SKU	Weave	Width	Full Roll Length (yd.)
054081	Plain Weave	38"	125
054082	Plain Weave	50"	125

7 oz. Fiberglass Cloth (#7532)

This medium-weight, easy-to-use cloth is widely used in marine construction and repairs and tooling applications. Available in full rolls only.

SKU	Weave	Width	Full Roll Length (yd.)
054086	Plain	38"	125

8.5 oz. Fiberglass Cloth (#7725)

This cloth's diagonal weave pattern is highly desired for its cosmetic appearance and is used in many high-performance applications. Its highly conformable properties allow it to fit in tight areas and around complex shapes.

SKU	Weave	Width	Full Roll Length (yd.)
054098	2x2 Modified Twill	38"	125

8.8 oz. Fiberglass Cloth (#1581)

This tightly woven fiberglass cloth is used where a high glass-to-resin ratio is required, producing a stronger, lighter composite than is possible with a plain weave. Its eight-harness satin weave pattern enables it to conform around curved surfaces more easily than a plain weave, making it a popular choice in aerospace and other high-end applications.

SKU	Weave	Width	Full Roll Length (yd.)
054083	8 HS	38"	125

8.8 oz. Fiberglass Cloth (#7781)

Like 1581, this cloth is used where a high glass-to-resin ratio is required, producing a stronger, lighter composite than is possible with a plain weave. Its tightly-woven, eight-harness satin weave pattern is flatter than 1581 and enables it to conform around curved surfaces more easily, making it a popular choice in aerospace and other high-end applications.

SKU	Weave	Width	Full Roll Length (yd.)
054153	8 HS	50"	125

10 oz. Fiberglass Cloth (#7500)

The most popular medium-weight fiberglass fabric, 7500 features an excellent balance of cost, weight, and strength. Its well-known versatility makes it popular for tooling, FRP boat construction, sandwich core panels, waterproofing and other high-strength layup applications.

SKU	Weave	Width	Full Roll Length (yd.)
054144	Plain	38"	125
054091	Plain	50"	125



18 oz. Fiberglass Cloth (#7544)

This heavy-duty cloth features a plain weave that is less “open” than a mock leno weave, resulting in a higher glass-to-resin ratio. It is primarily used in place of multiple layers of a medium-weight fabric where a rapid build-up is required. This heavier cloth's less conformable characteristics make it better suited for flat or slightly curved shapes, and/or as back-up layers behind lighter surfacing layers.

SKU	Weave	Width	Full Roll Length (yd.)
054147	2 End Plain	38"	125

20 oz. Fiberglass Cloth (#7587)

This heavy-duty cloth features a mock leno weave that is more “open” than a plain weave, making it easier to wet-out. It is primarily used in place of multiple layers of a medium-weight fabric when a rapid build-up is required. This heavier cloth's less conformable characteristics make it better suited for flat or slightly curved shapes, and/or as back-up layers behind lighter surfacing layers.

SKU	Weave	Width	Full Roll Length (yd.)
054148	Mock Lenos	38"	80

38 oz. Fiberglass Cloth (#1597)

This is the heaviest fiberglass cloth and features a triple weave. It is primarily used with epoxy in applications where a very strong, rapid build-up is required or to reinforce wood. This heavier cloth's less conformable characteristics make it better suited for flat or slightly curved shapes, and/or as back-up layers behind lighter surfacing layers.

SKU	Weave	Width	Full Roll Length (yd.)
054151	Triple Plain	38"	50

Fiberglass Tapes (8.75 oz.)

These plain weave fiberglass tapes are offered in various widths and are used with or without fiberglass cloth to laminate plastic tooling for exact duplication applications. Manufactured with bound/hemmed edges and a 627 silane finish, they are sold in full rolls only. The Unidirectional tape is made with heavy 12 oz. / sq. yd. fiberglass stitched to a ¾ oz. / sq. yd. mat. The mat helps hold the fiberglass together during cutting and laminating.

SKU	Width	Full Roll Length (yd.)
054105	½"	50
054129	1"	50
054130	2"	50
054131	3"	50
054132	4"	50
054133	6"	50
054134	12"	50



OTHER FIBERGLASS REINFORCEMENTS



Fiberglass Strand

Ideal for use with Repro Laminating Resin or epoxy laminating resins where a faster layup is required, Fiberglass Strand is also easier to apply than cloth around irregular areas.

SKU	Description	Net Weight (lb.)
054074	1/8" Fiberglass Strand	5
054072	1/8" Fiberglass Strand	55
054073	1/4" Fiberglass Strand	5
054071	1/4" Fiberglass Strand	50

Fiberglass Stitchmat

Also referred to as Biaxial Mat, Stitchmat is a heavy, 18-ounce woven roving, stitched to a light 3/4 oz. fiberglass mat. Used mainly with polyester laminating resins for building laminate strength and thickness, the mat helps hold the roving together during cutting and laminating.

SKU	Description	Width	Length
404748	Stitchmat 18 oz. roving with 3/4 oz. mat	50"	76 yards

Fiberglass Chopped Strand Mat

This unwoven reinforcement fabric is manufactured from chopped fiberglass strands secured with a powder binder. Compatible with polyester, vinyl ester, and epoxy resins, this product is most commonly used in the hand lay up process and ideal for constructing a wide variety of laminated parts.

SKU	Description	Width	Length
404830	1.5 oz. Chopped Strand Mat	38"	200'
404835	1.5 oz. Chopped Strand Mat	50"	200'

Lengths are an approximation.

Fiberglass Veil Cloth

Flexiveil 130 Fiberglass Veil Cloth is a non-woven, continuous-strand fiberglass lightweight mat that provides a resin-rich surface reinforcement to fiberglass gel coats or epoxy surface coats. This product strengthens the surface, helps prevent print-through of woven reinforcing layers of fiberglass cloth, shields against corrosion and stress, and protects against excessive wear. It conforms easily to contoured surfaces, is 10 mil thick (0.010"), and is manufactured using A glass for superior corrosion and chemical resistance.

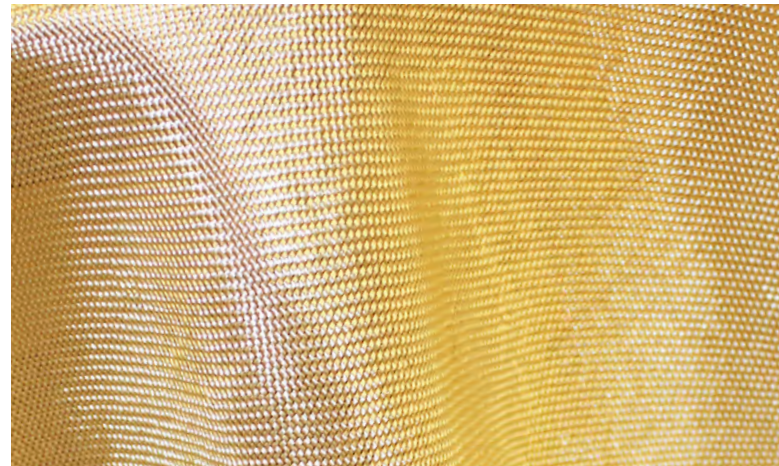
SKU	Description	Width	Length
054136	Flexiveil 130 (10 mil)	40"	50'
054135	Flexiveil 130 (10 mil)	40"	1200'

KEVLAR® CLOTH

Kevlar® fiber, also known as aramid fiber, is most widely known for its superior resistance from impact, fatigue, wear, and tear. All of our Kevlar® woven fabrics are made with Kevlar™ 49, the structural grade of Kevlar® material for composite reinforcement (as opposed to Kevlar® 29, the ballistic grade material).

Lighter than fiberglass but heavier than carbon fiber, it is used for manufacturing sporting goods equipment, marine vessels of all sizes, and in the automotive and aerospace industries. It is often used with either fabric to improve the toughness, flexibility, abrasion resistance, and most importantly, impact resistance of a composite part.

Kevlar® will degrade when exposed to UV light, so accommodation should be made in part design or choice of matrix materials and additives. Kevlar® is a registered trademark of DuPont.



1.7 oz. Kevlar® Cloth (Style 5120)

SKU	Weave	Width
404301	Plain	38"

▶ Finish	618
▶ Warp	195 Denier Kevlar®
▶ Fill	195 Denier Kevlar®
▶ Construction (Ends x Picks)	34 X 34 (per inch)
▶ Breaking Strength	200 lb. / in. (in both directions)
▶ Thickness	0.004 in.

This is our thinnest and lightest Kevlar® cloth, used in many smaller applications or in larger composite applications that require the performance of Kevlar® with the least amount of additional weight or part thickness.

5 oz. Kevlar® Cloth (Style 5285)

SKU	Weave	Width
404312	4 HS	38"

▶ Finish	618
▶ Warp	1140 Denier Kevlar®
▶ Fill	1140 Denier Kevlar®
▶ Construction (Ends x Picks)	17 X 17 (per inch)
▶ Breaking Strength	650 lb. / in. (in both directions)
▶ Thickness	0.01 in

This is our standard weight Kevlar® fabric in 4-harness satin weave form. The 4HS weave provides greater conformability for working with irregular shapes and in corners.

CARBON FIBER CLOTH

Carbon Fiber fabric is well known as one of the strongest and stiffest reinforcement materials available. Although it is more expensive than glass, it easily justifies its premium price when used in high-performance applications.

All Freeman Carbon Fiber fabrics are top-quality materials manufactured by BGF and made exclusively from polyacrylonitrile (PAN) precursors, thus making them suitable for all high-performance applications. Available by the yard and in full rolls.

3K Carbon Fiber Cloth – Plain Weave (#94901)

SKU	Width	Full Roll Length (yd.)
404005	50"	100

▶ Warp	3K
▶ Fill	3K
▶ Construction (Ends x Picks)	12 x 12
▶ Weight	5.7

Our lightest carbon fiber cloth features a plain weave (the 'one over, one under' pattern gives it a checkerboard appearance) that is commonly used by manufacturers of lightweight aerodynamic parts.

While not as drapable as the 2x2 twill weave, it is easier to handle.

3K Carbon Fiber Cloth – 2x2 Twill Weave (#94933)

SKU	Width	Full Roll Length (yd.)
404015	50"	100

▶ Warp	3K
▶ Fill	3K
▶ Construction (Ends x Picks)	13 x 13
▶ Weight	6.2

This is our lightest carbon fiber cloth that features the popular 2x2 twill weave (the 'two over, two under' pattern gives a diagonal appearance) that many recognize as "the look" of carbon fiber. This weave

also makes it more drapable, yet more delicate to handle.

6K Carbon Fiber Cloth – 2x2 Twill Weave (#94910)

SKU	Width	Full Roll Length (yd.)
404020	50"	100

▶ Warp	6K
▶ Fill	6K
▶ Construction (Ends x Picks)	12 x 12
▶ Weight	11.2

A medium weight carbon fiber cloth features the popular 2x2 twill weave (the 'two over, two under' pattern gives a diagonal appearance) that many recognize as "the look" of carbon fiber.

However, since it is not as drapable as the 3k carbon cloth, it is more often used in structural applications.

6K Carbon Fiber Cloth – 5HS Weave (#94900)

SKU	Width	Full Roll Length (yd.)
404010	50"	100

▶ Warp	6K
▶ Fill	6K
▶ Construction (Ends x Picks)	12 x 12
▶ Weight	11.2

This medium-weight cloth features a five-harness satin weave, giving it higher drapability than the 6K 2x2 twill weave.

12K Carbon Fiber Cloth – 2x2 Twill Weave (#94140)

SKU	Width	Full Roll Length (yd.)
404030	50"	100

▶ Warp	12K T300
▶ Fill	12K T300
▶ Construction (Ends x Picks)	11 x 11
▶ Weight	19.2

This heavy-duty carbon fiber cloth features the popular 2x2 twill weave, giving it adequate drapability for its size. While more difficult to form than lighter carbon cloths, this fabric enables rapid buildup,

making it ideally suited for the construction of flat parts with high strength and stiffness requirements.

Unidirectional Carbon Fiber Tapes

SKU	Width	Full Roll Length (yd.)
404060	1"	100
404062	2"	100
404064	3"	100
404066	4"	100
404068	6"	100

▶ Warp	12K
▶ Fill	G150 Fiberglass
▶ Construction (Ends x Picks)	11 x 8
▶ Weight	8.8

These tapes are made from flat filaments of carbon (not twisted, like yarns), and provide the strength and stiffness of carbon fiber in one direction only, thus enabling the maximum precision in orientation. Sold by the yard.



MIA VACUUM BAGGING SUPPLIES

Mia Vacuum Bag and Release Film

SKU	Thickness	Width
400500	0.002"	60"

Mia Vacuum Bag and Release Film is a product that can be used both as the vacuum bag as well as an effective release film. Ideal for polyester, vinylester, epoxy, and phenolic resins, it has a temperature resistance to 285°F. Polyolefin film, green in color.

Mia Stitch Peel Ply Fabric

SKU	Thickness	Width
406800	0.006"	60"

This nylon fabric is used in the laminating process and is placed directly against the back side of a laminated tool. This provides a rough surface that may be readily bonded to, thus saving valuable time in sanding or abrading the surface. Mia Stitch Peel Ply also has "red tracers" to easily identify the peel ply after the part is cured, so the risk of forgetting to remove the peel ply is minimized.

Mia Perforated Release Film

SKU	Thickness	Width
400502	0.002"	60"

Mia Perforated Release Film is a polyolefin film that contains uniformly spaced perforations. These 0.015" holes, staggered on ¼" centers, permit the excess resin from the laminate to flow through the film and be absorbed in the bleeder cloth.

Mia Breather / Bleeder Fabric

SKU	Width
400505	60"

This multi-purpose product may be used as a bleeder to absorb excess resin, as well as a breather to permit even air flow over the tool surface. This polyester product is white in color, weighs 4 oz. / sq. yd., and is suitable for a maximum temperature of 375°F.

Mia Flow Resin Infusion Media

SKU	Thickness	Width
406005	0.05"	60"

This red polyethylene flow media is designed to provide even resin flow through the entire part during the infusion process. Mia Flow is engineered with two distinct strand layers to provide consistent channels for resin flow. The product is 0.050" thick with ¼" mesh size openings.

Mia Pressure Sensitive Tape

SKU	Thickness	Width	Length
406668	0.015"	1"	72 yd.

Mia Pressure Sensitive Tape is a polyester, multi-purpose, pressure sensitive tape that uses a rubber based adhesive. This material is used for holding down vacuum bagging materials or masking off areas where excess resin flow or flash may occur. The tape is orange and temperature resistant to 350°F.



Mia Sealant Tape

SKU	Thickness	Width	Length
406665	⅛"	½"	25'

Mia Sealant Tape is designed to secure the bagging film to the tool surface. This yellow synthetic rubber provides an excellent sealing surface while still being able to be removed cleanly from metal or composite surfaces. Good up to 400°F, this product is sold in rolls ⅛" thick x ½" wide x 25' long.



Mia Bagging Hardware

Mia Vac Valve (406685) is a premium-quality vacuum valve made from machined aluminum and comes complete with base, silicone seal, and pressure plate for quick and easy installation. Male ¼" NPT threads.



Mia Vac Gauge (406670) is a liquid-filled gauge with a range of adjustment from 30" Hg to -5" Hg. Large 2.5" diameter face with male ¼" NPT threads.



Mia Quick Disconnect (406661/406662) is sold as two separate items and may be purchased individually. Both are made from plated steel to provide years of service. Temperature resistance to 500°F.

Mia Vac Hose (406680) is a ⅜" I.D. x 10' long vacuum hose that may be used for low temperature applications (275°F max) or room temperature use. ¼" male NPT fittings on both ends.



Mia Venturi Vacuum Generator (406690)

is a low-cost alternative to a traditional vacuum pump. This unit, when connected to 80 psi of compressed air, is able to generate a vacuum up to 25.5" Hg. It has a ⅛" NPT female connection to compressed air and a ¼" NPT male connection to attach the vacuum hose.