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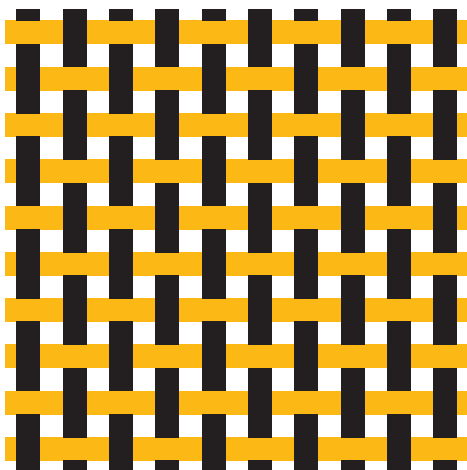
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CONSTRUCTION OF WOVEN REINFORCEMENTS

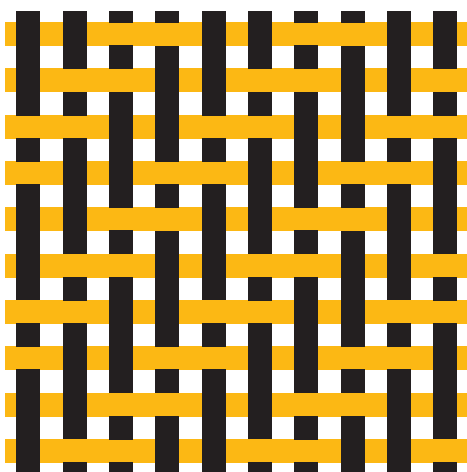
Fabric construction ensures a variety of applications

Fabrics consist of two systems of parallel yarns, interlaced at ninety degrees to one another, the warp and the weft. Most fabrics have identical or similar numbers of threads in both directions and the yarn count is generally the same. These are known as bidirectional fabrics. The various weave patterns are created by sequentially raising different warp threads prior to inserting the weft.



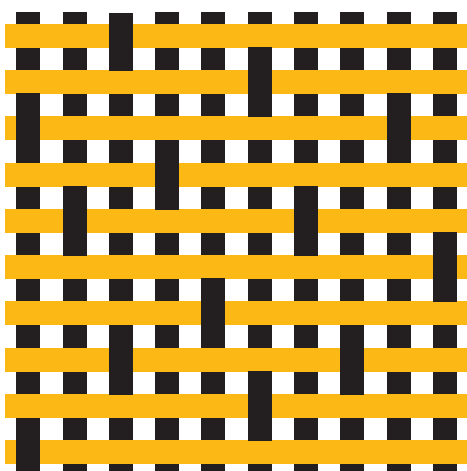
PLAIN WEAVE

Basic weave pattern. The fabric is easy to handle due to good dimensional stability and minimal fraying when cut. Lends itself to large flat surfaces.



TWILL WEAVE

Greater mechanical strength and stiffness of laminate due to limited thread deflection (crimp). The fabrics are more drapable and therefore better suited to shaped components than plain weave fabrics.



SATIN WEAVE

Even less thread deflection than twill fabrics. Very good drapability makes it suitable for small radius shapes.

Tailor-made fabrics constructions for special applications :

UNIDIRECTIONAL FABRICS

The thin weft threads are required solely to hold the warp threads in place. For the same amount of resin more warp threads can be brought into the laminate. This enhances the strength and stiffness of the laminate compared to bidirectional fabrics. These fabrics are used in applications with single axis loading.

MIXED FABRICS

Different types of fibre are used in warp and weft. For example, a less expensive glass yarn can be used in the weft of a unidirectional carbon fabric, if the stiffness of the more expensive carbon fibre is not required in this direction.

HYBRID FABRICS

Both the warp and the weft consist of more than one type. By combining various fibres it is possible to create a fabric exhibiting the best properties of each fibre, e.g. the impact resistance of aramid fibres with the rigidity of carbon fibres or the compressive strength of glass fibres.



CONSTRUCTION OF MULTIAXIAL REINFORCEMENTS

Multiaxial reinforcements

are ideal textile structures for reinforced composites. Multiaxial fabrics are made from different number of layers, fibre orientation, type of fibre, weight of single layers. Their structure effectively allows to the manufacturer to process multiple layers of unidirectional fibres in single fabric. Single layers are fixed together by stitching with lightweight polyester yarn, bonding with PES scrim or resin compatible adhesive with structural layer of very light glass net. Multiaxial can be fixed on outer surface of the fabric or between its layers.

Due to the fact that each layer is in different orientation or axis, they are called as multi-axial.

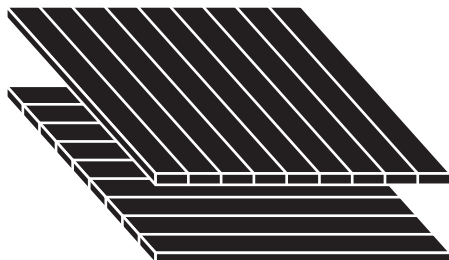
The most important advantages of multiaxial structures

- better mechanical properties (higher tensile and flexural properties) of the laminate
- optimized performance (reinforcing fibres in different axis)
- easier for handling (fixed layers with stitching or bonding)
- wide range of possible combinations, especially heavier materials
- reduced print-through
- uncrimped fibres allow good resin impregnation and flow which is optimal for infusion and RTM (stitching helps resin migration through layers and maximise infusion rates)



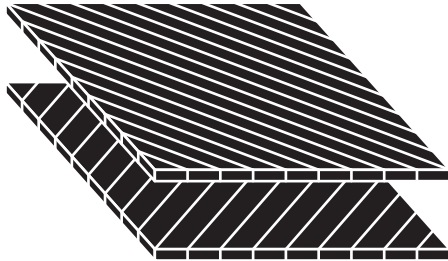
UNIDIRECTIONALS (0° and 90°)

Suitable for applications requiring strength and/or stiffness in specific orientation of the laminate. Unidirectional fabric is characterized by high tensile strength which is advantage for GRP profiles only.



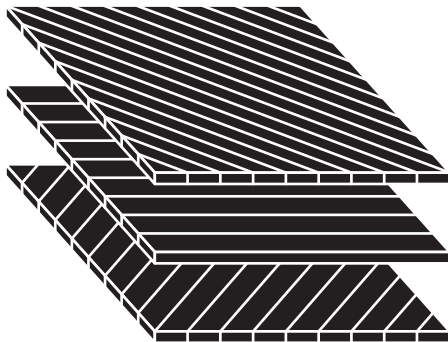
BIAXIALS (0°/90°)

The application is similar to woven rovings. This structure offers improved laminate performance – increased tensile and structural strength, less weight and improved surface finish with less print-through.



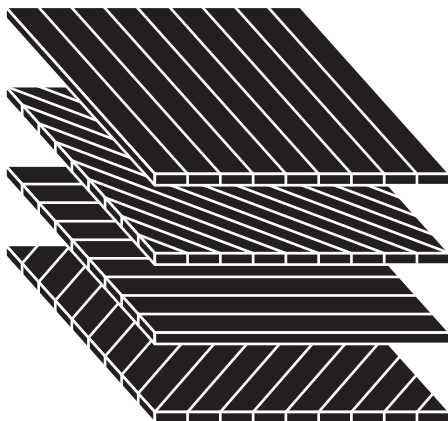
BIAXIALS (+45°/-45°)

This kind of biaxial fabric is used for applications where especially torsion strength and shear resistance is required. Excellent fibre coverage minimizes print-through.



TRIAXIALS (0°/-45°/+45°) and (-45°/90°/+45°)

Used in order to increase torsion rigidity in combination with longitudinal (0°/±45°) or transverse (-45°/90°/+45°) strength. Suitable for long and tubular structures such a rotor blades or gliders. Heavy fabrics reduce the number of needed layers.



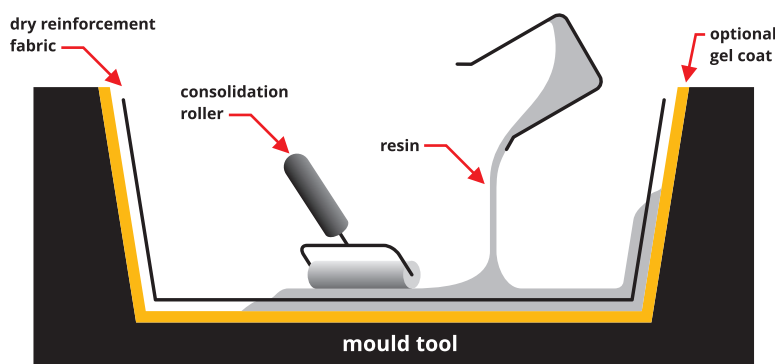
QUADRIAXIALS (0°/-45°/90°/+45°)

Quadriaxial structures offering strength in all four directions. They are excellent for production of boat hulls or pressure vessels (spread-pressure applications).

LAMINATING TECHNOLOGIES

Hand lamination

The most common application method for epoxy and polyester resins. This technology is used either for production of final products using a mould or production of moulds as such, respectively to make positive models. The method involves saturation of individual fabric layers with a resin (with a rolling pin or brush) and their sequential placing into a mould or on a surface of the required product. After the lamination work has finished, the mould gets cured as required, either at room temperature or at elevated temperature in an oven.

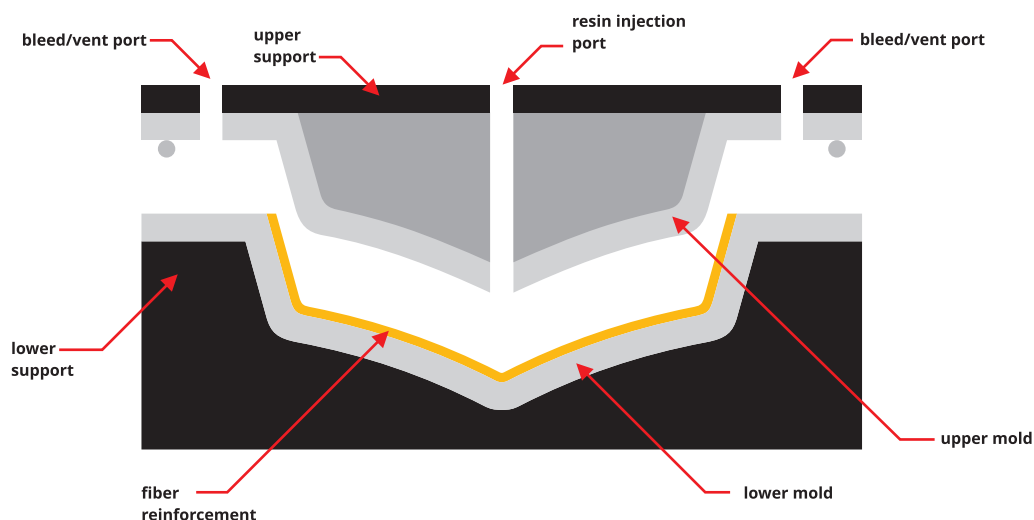


Spray-up

This method is used mainly for application of gelcoats, topcoats and surface resins owing to its easy application and the ability to achieve homogenous surfaces.

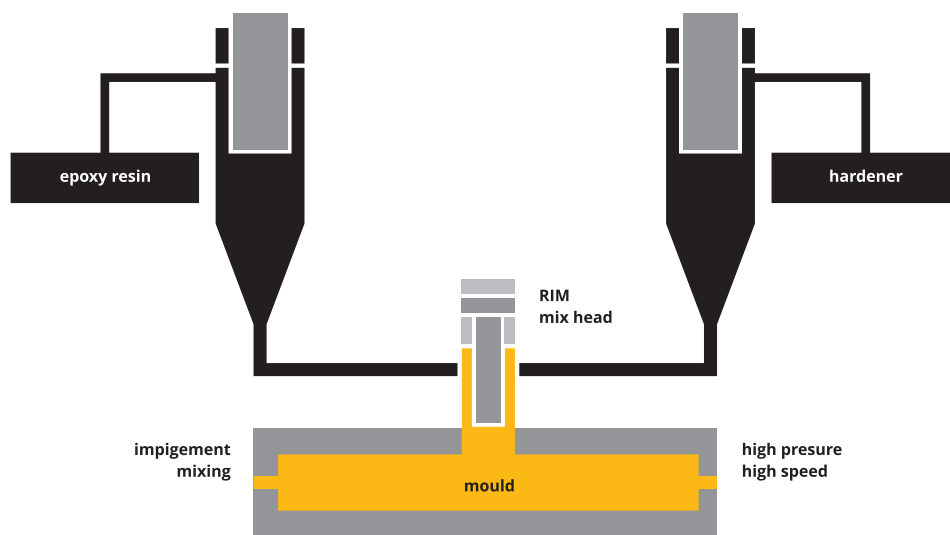
RTM (Resin Transfer Moulding)

This method involves initial placing of prescribed composition of dry parts in a mould. Then vacuum is applied to the mould and through the vacuum the resin is sucked in by means of inlets and the product gets saturated. The moulds are one-sided moulds covered by foil so it is clearly visible when a complete saturation of the composite part has been completed. Afterwards the excess resin flows away through edge gouge. The inlet of resin is closed under constant vacuum. As a result, all the excess resin is sucked out and all the layers are pressed to create a compact unit. Very precise and identical parts can be manufactured using this method and the production takes relatively short period of time.



RIM (Reaction Injection Moulding)

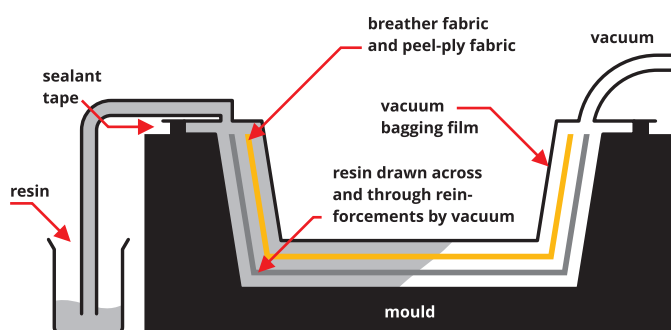
It is one of the most advanced machine productions of composite parts. In the initial stage, a mixture of A and B compound is mixed continuously by means of a dosing device. Afterwards, it is distributed under pressure (usually 2 – 10 bars) in a rigid two-part composite mould. From the opposite side of the mould, the resin can be sucked out with connected vacuum pump in order to simplify saturation of more complicated parts or to speed up the saturation process. This method is used mainly for serial production to achieve production of number of parts in the shortest possible period. The moulds are very often heated up or they are equipped with heating and cooling systems.



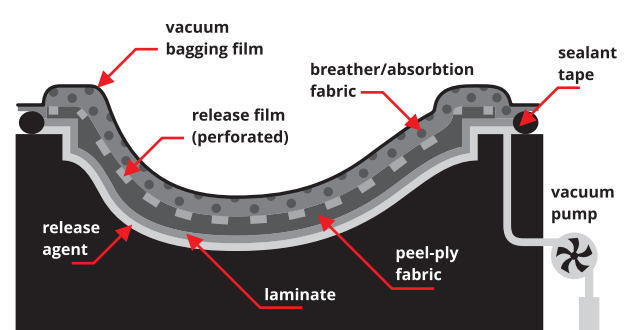
Vacuum technology

Vacuuming belongs to more advanced technologies of hand lamination. After the product has been laminated in the mould, it is covered with a peel-ply, respectively also with a foil or breather fabric. Then air is sucked out of the product by means of vacuum. This makes individual layers cling firmly to each other without defect and the excess resin is sucked out of the product, which results in decreasing its weight and increasing the strength of the composite parts.

Vacuum infusion



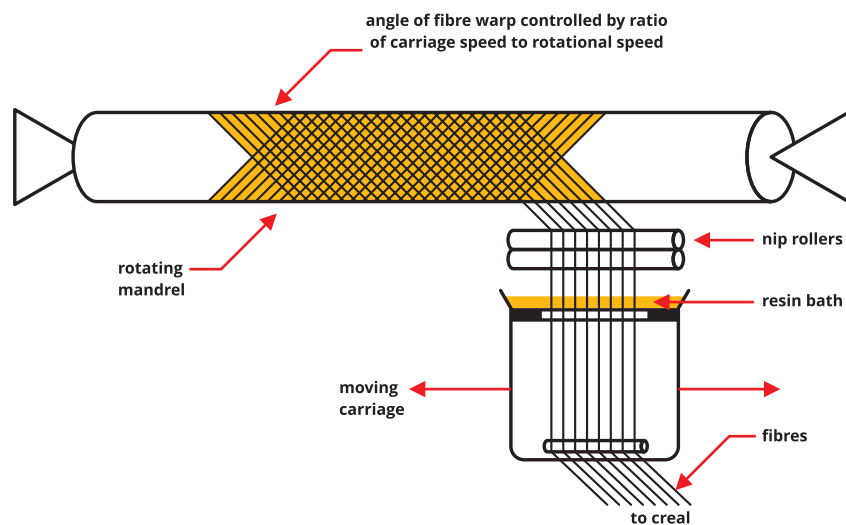
Hand lamination with subsequent vacuum technology



LAMINATING TECHNOLOGIES

Filament winding

Filament winding is a machine production involving continuous winding of roving in the machine, where (after the fiber has been saturated with resin) by means of a robotic arm moving in two or three spin axis, it is applied on a rotating mandrel. In this way tubes or various cone-shaped parts are manufactured. The advantage of this method is high product quality and option to adjust the percentage of the resin in the product as well as very precise distribution of individual fibers in the product. This gives a possibility to produce almost identical composite part that can be designed ahead using calculation or verified by breaking tests.



Foaming

It involves two or three-component systems. Their task is usually to fill up larger hollow spaces inside composite parts or other parts so that unwanted substances are prevented from getting in those hollow spaces or the foaming systems are meant to fill up strained edges of laminates and create a compact sandwich structure. Their advantage is high adhesion to various materials and high strength with regard to low volume weight.

Casting

Resin casting is a special application which involves either casting of various ready-made products from pure resin (without reinforcement) or various components covered by epoxy resins either for esthetical or protective reasons, e.g. to insulate conductive parts in electrical industry.

Prepreg processing

It involves dry production using fabrics pre-impregnated with resin. This resin is partly cured (so called hot-melt prepreg) or uncured that needs to be protected with a foil so that the individual layers will not cling together. The required parts are then cut from these pre-impregnated fabrics and are then inserted in mould and cured by heat under pressure, alternatively under vacuum.

Temperatures common for curing prepregs are in the range of 80° up to 140°C.

The advantage of this method is a clean job, quick production speed (less manipulation involved) and accuracy of saturation as the percentage of resin saturation of prepreg is always known ahead. On the other hand, the disadvantage is inability to make optical surface and that is why prepregs are mainly used for technical parts or parts that need to be brushed and lacquered after demoulding.

Bonding

By means of bonding composite parts can be attached to other parts or to each other in cases where a product cannot be produced as one-piece composite part. There are two types of bonding - structural bonding and non-structural bonding that is only to fix or attach a product. Structural joints are so strong that in most cases they can be compared with welded joint or they even outperform it.



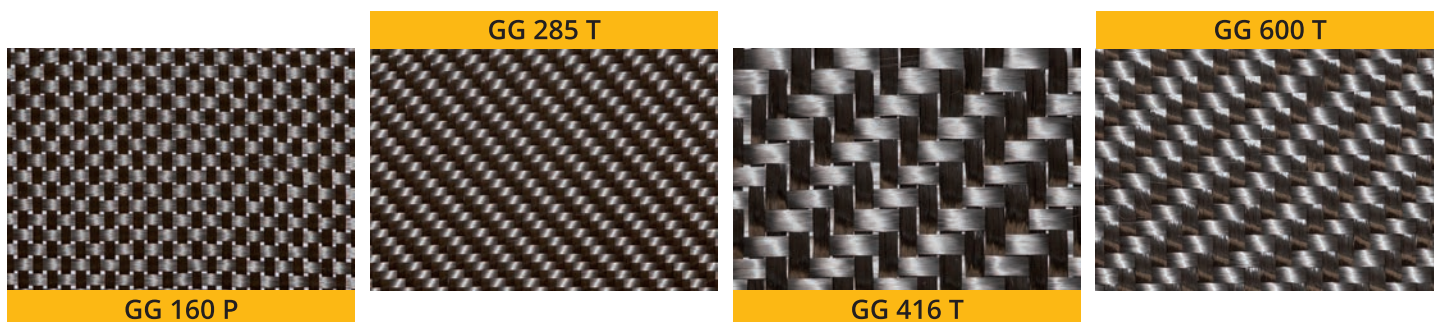
CARBON REINFORCEMENTS

MATERIAL
SPECIFICATION

Balanced carbon fabrics (G. ANGELONI s.r.l.)

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density		Thickness (mm)
			Warp	Weft	
GG 80 P	80	plain	carbon 67 tex	carbon 67 tex	0,10
GG 90 P	93	plain	carbon 67 tex	carbon 67 tex	0,10
GG 120 P	120	plain	carbon 67 tex	carbon 67 tex	0,12
GG 160 P/T	160	plain/twill 2/2	carbon 200 tex	carbon 200 tex	0,16
GG 200 P/T	193	plain/twill 2/2	carbon 200 tex	carbon 200 tex	0,20
GG 201 P/T	200	plain/twill 2/2	carbon 200 tex	carbon 200 tex	0,20
GG 220 P/T	220	plain/twill 2/2	carbon 200 tex	carbon 200 tex	0,22
GG 240 P/T	240	plain/twill 2/2	carbon 200 tex	carbon 200 tex	0,23
GG 285 T	285	twill 2/2	carbon 200 tex	carbon 200 tex	0,28
GG 285 T4	285	twill 4/4	carbon 200 tex	carbon 200 tex	0,28
GG 285 F	285	fish	carbon 200 tex	carbon 200 tex	0,28
GG 280 P/T	280	plain/twill 2/2	carbon 400 tex	carbon 400 tex	0,27
GG 300 P/T	300	plain/twill 2/2	carbon 400 tex	carbon 400 tex	0,29
GG 330 P/T	330	plain/twill 2/2	carbon 400 tex	carbon 400 tex	0,32
GG 370 H	370	satin 5H	carbon 400 tex	carbon 400 tex	0,36
GG 400 P	400	plain	carbon 800 tex	carbon 800 tex	0,39
GG 416 T	416	twill 2/2	carbon 800 tex	carbon 800 tex	0,41
GG 428 T	430	twill 2/2	carbon 800 tex	carbon 800 tex	0,42
GG 600 P/T	600	plain/twill 2/2	carbon 800 tex	carbon 800 tex	0,60
GG 630 T	630	twill 2/2	carbon 800 tex	carbon 800 tex	0,62
GG 650 T	650	twill 2/2	carbon 800 tex	carbon 800 tex	0,62
GG 800 T	790	twill 2/2	carbon 1600 tex	carbon 1600 tex	0,79
GG 1000 T	995	twill 2/2	carbon 1600 tex	carbon 1600 tex	1,00
GG 1200 T	1184	twill 2/2	carbon 1600 tex	carbon 1600 tex	1,20

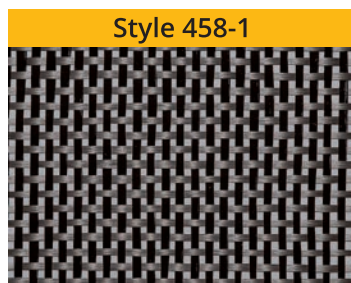
This chart contains only a part of the assortment of G.Angeloni. The complete information (catalogue) will be obtained on request.



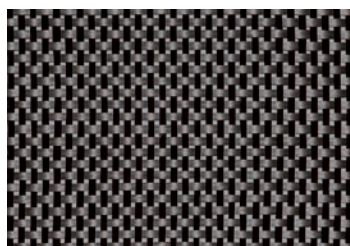
CARBON REINFORCEMENTS

Balanced carbon fabrics (C. Cramer GmbH & Co. KG)

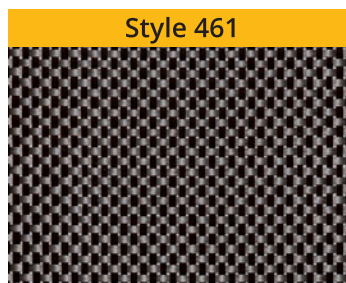
Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density		Thickness (mm)
			Warp	Weft	
Style 458-1	55	plain	carbon 67 tex	carbon 67 tex	0,10
Style 493	68	plain	carbon 67 tex	carbon 67 tex	0,10
Style 461	80	plain	carbon 67 tex	carbon 67 tex	0,12
Style 469	93	plain	carbon 67 tex	carbon 67 tex	0,14
Style 490	120	plain	carbon 67 tex	carbon 67 tex	0,16
Style 495	120	satin 1/4	carbon 67 tex	carbon 67 tex	0,16
Style 412	150	twill 2/2	carbon 67 tex	carbon 67 tex	0,20
Style 442	160	twill 2/2	carbon 200 tex	carbon 200 tex	0,30
Style 447	160	plain	carbon 200 tex	carbon 200 tex	0,27
Style 449	193	plain	carbon 200 tex	carbon 200 tex	0,30
Style 481	193	twill 2/2	carbon 200 tex	carbon 200 tex	0,30
Style 450	200	plain	carbon 200 tex	carbon 200 tex	0,30
Style 452	200	twill 2/2	carbon 200 tex	carbon 200 tex	0,33
Style 457	217	satin 3/1	carbon 200 tex	carbon 200 tex	0,32
Style 459	220	twill 2/2	carbon+Alu 200/23 tex	carbon+Alu 200/23 tex	0,34
Style 462	245	twill 2/2	carbon 200 tex	carbon 200 tex	0,36
Style 460	250	plain	carbon 200 tex	carbon 200 tex	0,33
Style 428	285	twill 2/2	carbon 400 tex	carbon 400 tex	0,47
Style 470	285	plain	carbon 200 tex	carbon 200 tex	0,38
Style 474	285	twill 4/4	carbon 200 tex	carbon 200 tex	0,43
Style 475	285	satin 1/4	carbon 200 tex	carbon 200 tex	0,45
Style 476	290	satin 1/4	carbon 200 tex	carbon 200 tex	0,45
Style 430	300	plain	carbon 400 tex	carbon 400 tex	0,42
Style 445	365	satin 1/4	carbon 400 tex	carbon 400 tex	0,58



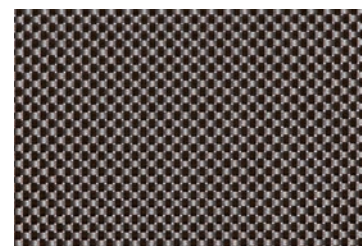
Style 458-1



Style 493



Style 461



Style 469

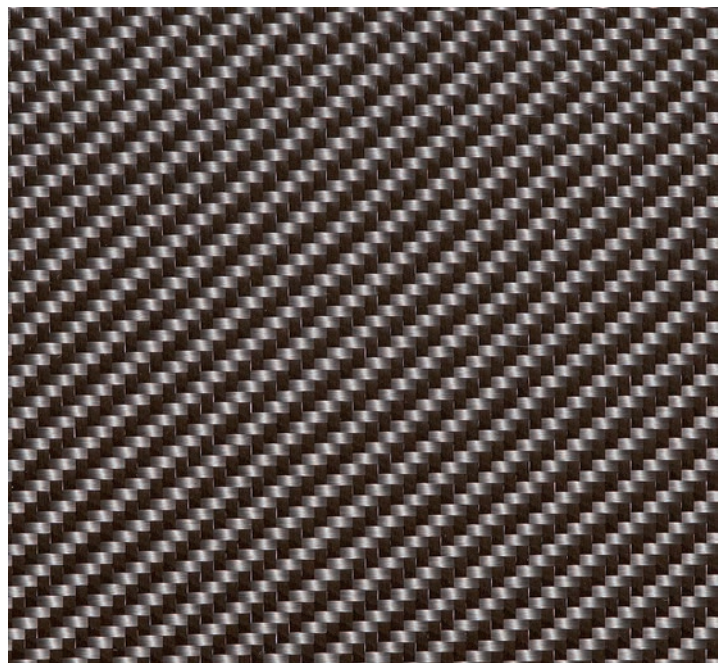
Balanced carbon fabrics (C. Cramer GmbH & Co. KG)

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density		Thickness (mm)
			Warp	Weft	
Style 437	370	satin 1/4	carbon 800 tex	carbon 800 tex	0,61
Style 438	370	satin 3/1	carbon 400 tex	carbon 400 tex	0,61
Style 439	370	satin 1/4	carbon 400 tex	carbon 400 tex	0,55
Style 498	370	satin 1/7	carbon 200 tex	carbon 200 tex	0,55
Style 405	375	plain	carbon 800 tex	carbon 800 tex	0,63
Style 402	400	twill 2/2	carbon 400 tex	carbon 400 tex	0,60
Style 426	400	twill 2/2	carbon 800 tex	carbon 800 tex	0,60
Style 427	400	plain	carbon 800 tex	carbon 800 tex	0,64
Style 431	460	plain	carbon 800 tex	carbon 800 tex	0,70
Style 436	460	twill 2/2	carbon 800 tex	carbon 800 tex	0,73
Style 443	465	satin 1/3	carbon 800 tex	carbon 400 tex	0,68
Style 404	600	twill 2/2	carbon 800 tex	carbon 800 tex	0,85
Style 411	645	twill 2/2	carbon 1600 tex	carbon 1600 tex	1,10
Style 424	660	twill 2/2	carbon 800 tex	carbon 800 tex	0,93
Style 422	645	plain	carbon 1600 tex	carbon 1600 tex	1,10
Style 434	680	panama 2/2	carbon 800 tex	carbon 800 tex	0,96

Style 490



Style 412

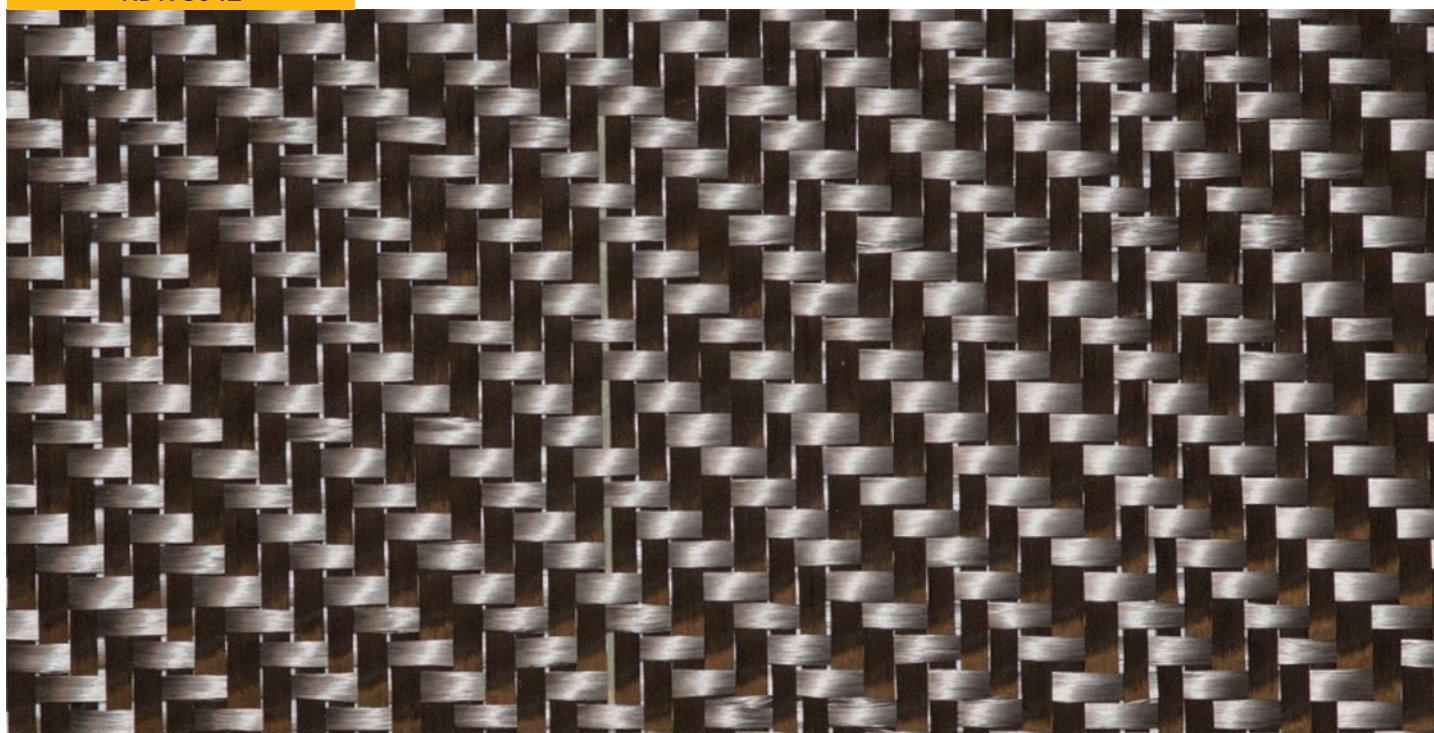


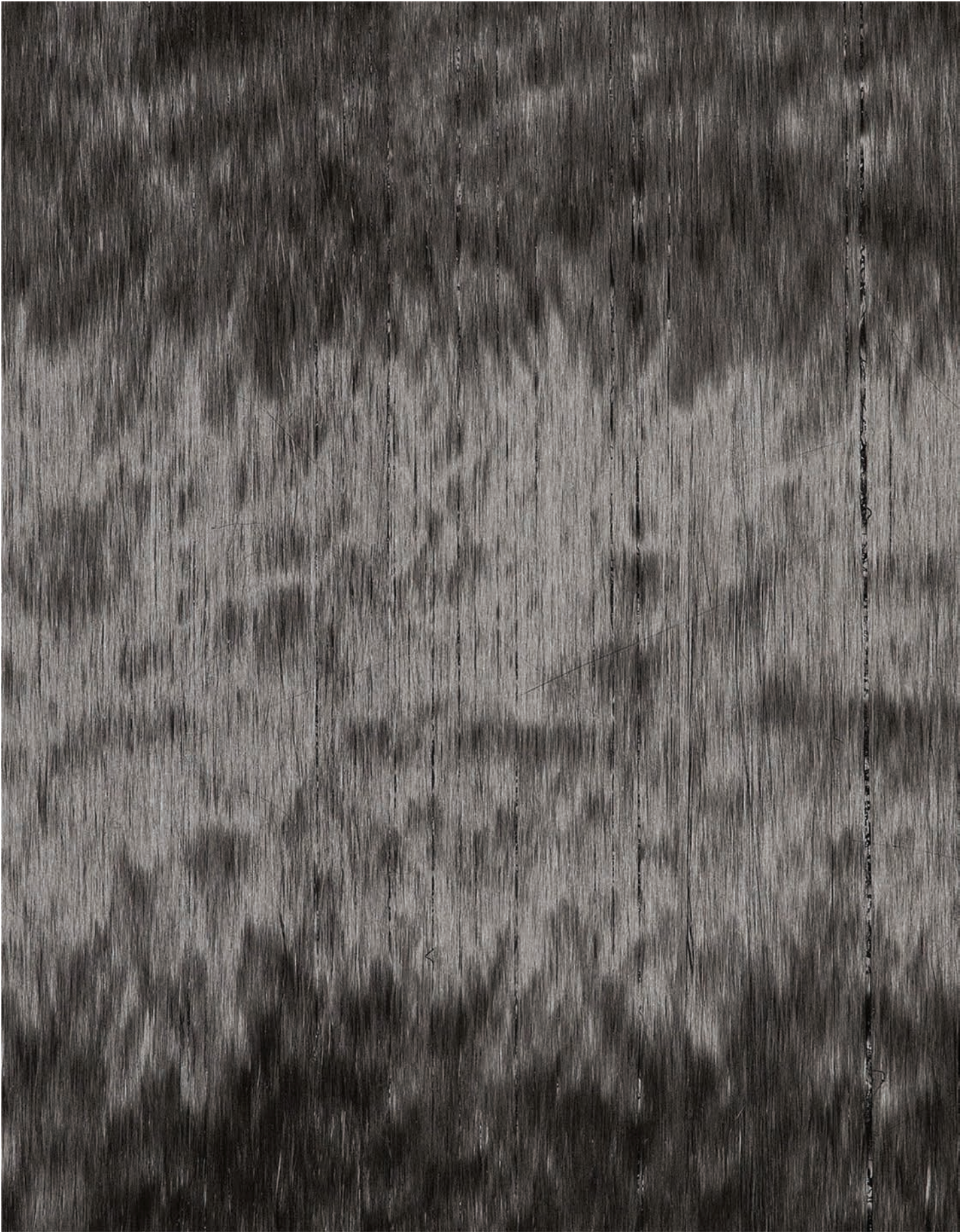
CARBON REINFORCEMENTS

Balanced carbon fabrics (SGL TECHNOLOGIES GmbH)

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density		Thickness (mm)
			Warp	Weft	
KDL 8023	95	plain	carbon 70 tex	carbon 70 tex	0,15
KDL 8048	160	plain	carbon 200 tex	carbon 200 tex	0,25
KDK 8058	160	twill 2/2	carbon 200 tex	carbon 200 tex	0,25
KDL 8003	200	plain	carbon 200 tex	carbon 200 tex	0,30
KDK 8042	200	twill 2/2	carbon 200 tex	carbon 200 tex	0,30
KDL 8049	240	plain	carbon 200 tex	carbon 200 tex	0,35
KDK 8043	240	twill 2/2	carbon 200 tex	carbon 200 tex	0,35
KDK 8054	280	twill 4/4	carbon 200 tex	carbon 200 tex	0,40
KDL 8051	300	plain	carbon 400 tex	carbon 400 tex	0,50
KDK 8052	300	twill 2/2	carbon 400 tex	carbon 400 tex	0,50
KDK 8045	400	twill 2/2	carbon 400 tex	carbon 400 tex	0,50
KDL 8050	300	plain	carbon 800 tex	carbon 200 tex	0,50
KDL 8057	400	plain	carbon 800 tex	carbon 200 tex	0,60
KDK 8002	420	twill 2/2	carbon 800 tex	carbon 800 tex	0,65
KDL 8001	480	plain	carbon 800 tex	carbon 800 tex	0,80
KDK 8004	650	twill 2/2	carbon 800 tex	carbon 800 tex	0,90

KDK 8042





CARBON REINFORCEMENTS

"Flat-Tow" carbon fabrics

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density
			Warp
ASPRO A-60 HM	62	plain	carbon 830 tex (IMS65 24K)
ASPRO A-80 HM	80	plain	carbon 830 tex (IMS65 24K)
ASPRO A-120	120	plain	carbon 1600 tex
ASPRO A-160	160	plain	carbon 1600 tex
DYF 15 - 160 P/T	160	plain/twill 2/2	carbon 1000 tex (15 mm)
DYF 25 - 160 P	160	plain	carbon 1000 tex (25 mm)
DYF 15/25 - 160 P	160	plain	carbon 1000 tex (15 mm)
DYF 15-160 P/T Aluminium	160	plain/twill 2/2	carbon 1000 tex (15 mm)
DYF 15-160 P/T Titanium	160	plain/twill 2/2	carbon 1000 tex (15 mm)
DYF 15-160 P/T Copper	160	plain/twill 2/2	carbon 1000 tex (15 mm)
DYF 25-160 P Aluminium	160	plain	carbon 1000 tex (25 mm)
DYF 25-160 P Titanium	160	plain	carbon 1000 tex (25 mm)
Style 2005	193	plain	carbon 800 tex
Style 2015	193	twill 2/2	carbon 800 tex

Special carbon fabrics

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density
			Warp
GG 201 P WF1 with fixation	200	plain	carbon 200 tex
GG 201 T WF1 with fixation	200	twill 2/2	carbon 200 tex

Metallic reinforced fabrics (INNOVATIVE TEX)

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density
			Warp
XGG 193 P AL 0,12	193	plain	carbon 200 tex + ALU 6101 wire 0,12 mm
GT 230 P 0,14	230	plain	carbon 200 tex



Material / Linear density	Thickness (mm)
Weft	
carbon 830 tex (IMS65 24K)	0,06
carbon 830 tex (IMS65 24K)	0,078
carbon 1600 tex	0,12
carbon 1600 tex	0,16
carbon 1000 tex (15 mm)	0,14
carbon 1000 tex (25 mm)	0,14
carbon 1000 tex (25 mm)	0,14
carbon 1000 tex (15 mm) with aluminium	0,16
carbon 1000 tex (15 mm) with titanium	0,16
carbon 1000 tex (15 mm) with copper	0,16
carbon 1000 tex (25 mm) with aluminium	0,16
carbon 1000 tex (25 mm) with titanium	0,16
carbon 800 tex	-
carbon 800 tex	-

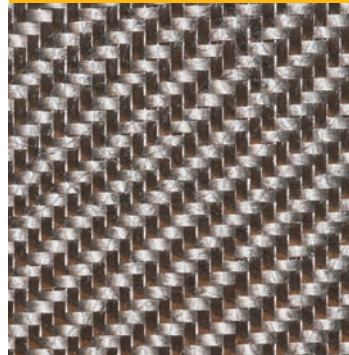
DYF 15 - 160 P Aluminium



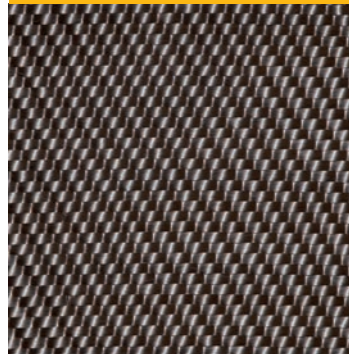
DYF 15 - 160 P Titanium



GG 201 T WF1



GT 230 P



Material / Linear density	Thickness (mm)
Weft	
carbon 200 tex	0,20
carbon 200 tex	0,20

Material / Linear density	Thickness (mm)
Weft	
carbon 200 tex + ALU 6101 wire 0,12 mm	-
Ti Inox steel wire AISI 316 L 0,14 mm	0,23

CARBON REINFORCEMENTS

Unidirectional carbon fabrics DYNANOTEX (G. Angeloni s.r.l.)

Reference	Areal weight (g/sqm)	Construction	Material / Linear density	Thickness (mm)
HS 15/80 DLN2	80	2 layers	carbon 1000 tex	0,075
HS 15/100 DLN2	100	2 layers	carbon 1000 tex	0,095
HS 15/130 DLN2	130	2 layers	carbon 1000 tex	0,120
HS 24/175 DLN2	175	2 layers	carbon 1600 tex	0,170
HS 24/200 DLN2	200	2 layers	carbon 1600 tex	0,170

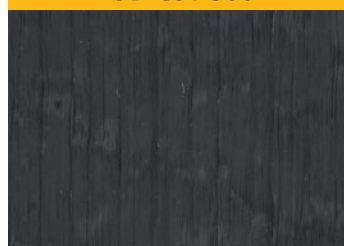
Unidirectional carbon fabrics with PES scrim (SGL epo GmbH)

Reference	Areal weight (g/sqm)	Construction	Material / Linear density	Thickness (mm)
UD CS 50	50	2 scrim	carbon 800 tex	0,20
UD CST 80	80	1 scrim	carbon 800 tex	0,16
UD CST 100	100	1 scrim	carbon 800 tex	0,19
UD CST 125	125	1 scrim	carbon 800 tex	0,21
UD CST 150	150	1 scrim	carbon 800 tex	0,22
UD CST 200	200	1 scrim	carbon 800 - 3600 tex	0,40
UD CS 200	200	2 scrim	carbon 800 - 3600 tex	0,30
UD CST 250	250	1 scrim	carbon 800 - 3600 tex	0,36
UD CS 250	250	2 scrim	carbon 800 - 3600 tex	0,40
UD CST 300	300	1 scrim	carbon 800 - 3600 tex	0,38
UD CS 300	300	2 scrim	carbon 800 - 3600 tex	0,42
UD CS 500	500	2 scrim	carbon 1600 - 3600 tex	0,66
UD CS 600	600	2 scrim	carbon 1600 - 3600 tex	0,75

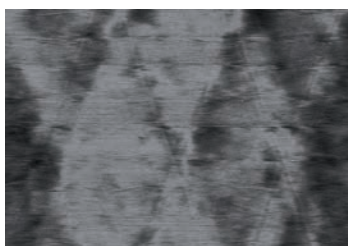
HS 15/80 DLN2



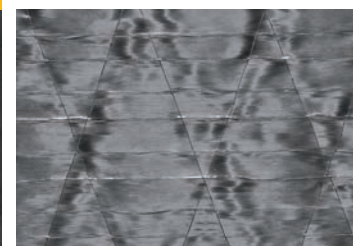
UD CST 300



UD CST 150



Unidry® 125



Unidirectional carbon fabrics with PES scrim Unidry®

Reference	Areal weight (g/sqm)	Construction	Material / Linear density	Thickness (mm)
Unidry® 50	50	1 scrim	carbon 3600 tex	-
Unidry® 80	80	1 scrim	carbon 3600 tex	-
Unidry® 100	100	1 scrim	carbon 3600 tex	-
Unidry® 125	125	1 scrim	carbon 3600 tex	-
Unidry® 200	200	1 scrim	carbon 3600 tex	-
Unidry® 300	300	2 scrim	carbon 3600 tex	-
Unidry® 400	400	2 scrim	carbon 3600 tex	-
Unidry® 600	600	2 scrim	carbon 3600 tex	-

Unidirectional carbon fabrics with E-glass & PES scrim

Reference	Areal weight (g/sqm)	Construction	Material / Linear density	Thickness (mm)
HPT 320 C0	320	0°	carbon 3300 tex / E-glass 68 tex	0,30
HPT 440 C0	439	0°	carbon 3300 tex / E-glass 136 tex	0,40
HPT 520 C0	519	0°	carbon 3300 tex / E-glass 136 tex	0,50
HPT 620 C0	621	0°	carbon 3300 tex / E-glass 136 tex	0,60

Unidirectional carbon fabrics with E-glass yarns

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density	Thickness (mm)
GV 125 U	125	plain	carbon 200 tex EC 9 - 68 tex	0,10
GV 170 U	170	plain	carbon 200 tex EC 9 - 68 tex	0,15
GV 220 U	220	plain	carbon 400 tex EC 9 - 68 tex	0,20
GV 320 U	325	plain	carbon 400 tex EC 9 - 68 tex	0,30
GV 330 U	330	plain	carbon 800 tex EC 9 - 68 tex	0,30
GV 420 U	420	plain	carbon 800 tex EC 9 - 68 tex	0,40
GV 520 U	520	plain	carbon 1600 tex EC 9 - 136 tex	0,50
GV 620 U	630	plain	carbon 1600 tex EC 9 - 136 tex	0,60

CARBON REINFORCEMENTS

Thermofixed UD carbon fabrics

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density		Thickness (mm)
GV 200 U TFX	218	plain	carbon 400 tex	Thermoplastic yarn 110 tex	0,20
GV 201 U TFX	218	plain	carbon 800 tex	Thermoplastic yarn 110 tex	0,20
GV 300 U TFX	322	plain	carbon 800 tex	Thermoplastic yarn 110 tex	0,29
GV 301 U TFX	322	plain	carbon 1600 tex	Thermoplastic yarn 110 tex	0,29
GV 400 U TFX	420	plain	carbon 800 tex	Thermoplastic yarn 110 tex	0,40
GV 401 U TFX	420	plain	carbon 1600 tex	Thermoplastic yarn 110 tex	0,40
GV 601 U TFX	620	plain	carbon 1600 tex	Thermoplastic yarn 110 tex	0,70
GV 800 U TFX	820	plain	carbon 1600 tex	Thermoplastic yarn 110 tex	0,80

Carbon multiaxial fabrics (stitched with PES yarn)

Reference	Areal weight (g/sqm)	Construction	Material / Linear density	Thickness (mm)
CBX30 HM	30	± 45°	carbon 830 tex (IMS65 24K)	-
CTXL50 HM	50	0°/± 45°	carbon 830 tex (IMS65 24K)	-
CBX70	70	± 45°	carbon 800 tex	-
CBX70	70	± 30°	carbon 800 tex	-
CBX150	155	± 45°	carbon 800 tex	-
CBX200	205	± 45°	carbon 800 tex	-
CBXS200	206	0°/90°	carbon 800 tex / 1600 tex	-
CBX250	255	± 45°	carbon 800 tex	-
CBX300	305	± 45°	carbon 800 tex / 1600 tex / 3200 tex	-
CBXS300	306	0°/90°	carbon 800 tex / 1600 tex / 3200 tex	-
CBX400	405	± 45°	carbon 800 tex / 1600 tex / 3200 tex	-
CBXS400	406	0°/90°	carbon 800 tex / 1600 tex / 3200 tex	-
CBX450	455	± 45°	carbon 800 tex / 1600 tex / 3200 tex	-
CBX600	604	± 45°	carbon 800 tex / 1600 tex / 3200 tex	-
CBXS600	606	0°/90°	carbon 800 tex / 1600 tex / 3200 tex	-
CQX 400	406	0°/± 45°/90°	carbon 800 tex / 1600 tex	-
CQX 600	604	0°/± 45°/90°	carbon 800 tex / 1600 tex / 3200 tex	-
CQX 1200	1206	0°/± 45°/90°	carbon 800 tex / 1600 tex / 3200 tex	-

Carbon multiaxials (with PES scrim)

Reference	Areal weight (g/sqm)	Construction	Material / Linear density	Thickness (mm)
MX CS 100	100	± 45° (2 scrim)	carbon 800 tex	0,25
MX CST 160	160	± 45° (1 scrim)	carbon 800 tex	0,29
MX CST 200	300	± 45° (1 scrim)	carbon 800 tex	0,36

Non-woven carbon fabrics

Reference	Areal weight (g/sqm)	Type of binder	Material / Linear density	Thickness (mm)
SPC 7010	20	styrene-soluble waterproof	carbon fibre length 12 mm	0,25
SPC 7011	30	polyvinylalcohol	carbon fibre length 6 / 12 mm	0,35

Carbon multiaxial fabrics (stitched with PES yarn)

Reference	Areal weight (g/sqm)	Construction	Material / Linear density	Thickness (mm)
HPT 300 C45	296	± 45°	carbon 3300 tex	0,30
HPT 300 C090	297	0°/90°	carbon 3300 tex	0,30
HPT 410 C45	406	± 45°	carbon 3300 tex	0,40
HPT 410 C090	407	0°/90°	carbon 3300 tex	0,40
HPT 450 C45	446	± 45°	carbon 3300 tex	0,45
HPT 450 C090	451	0°/90°	carbon 3300 tex	0,45
HPT 610 C45	606	± 45°	carbon 3300 tex	0,60
HPT 610 C090	607	0°/90°	carbon 3300 tex	0,60

GV 200 U TFX



GV 300 U TFX



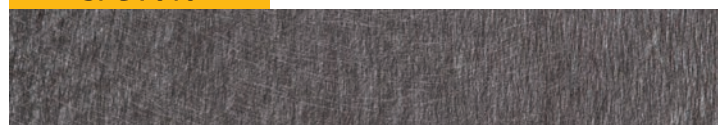
GV 400 U TFX



MX CST 160



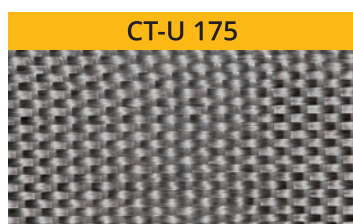
SPC 7010



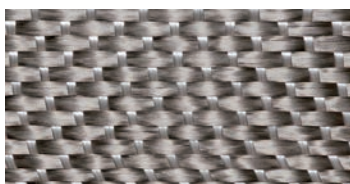
CARBON REINFORCEMENTS

Balanced and unidirectional carbon tapes

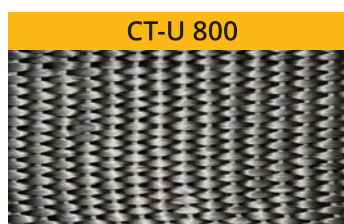
Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density		Thickness (mm)
			Warp	Weft	
CT-B 220	220	plain	carbon 200 tex	carbon 200 tex	0,20
CT-B 240	240	plain	carbon 200 tex	carbon 200 tex	0,25
CT-B 300	305	plain	carbon 400 tex	carbon 200 tex	0,31
CT-B 320	325	plain	carbon 200 tex	carbon 200 tex	0,33
KDL 5002	200	plain	carbon 200 tex	carbon 200 tex	0,30
CT-U 125	125	plain	carbon 200 tex	EC 9 - 34 tex	0,12
CT-U 175	170	plain	carbon 200 tex	EC 9 - 34 tex	0,18
CT-U 200	200	plain	carbon 400 tex	EC 9 - 34 tex	0,18
CT-U 260	270	plain	carbon 400 tex	EC 9 - 34 tex	0,25
CT-U 320	320	plain	carbon 400 tex	EC 9 - 34 tex	0,31
CT-U 330	330	plain	carbon 800 tex	EC 9 - 68 tex	0,32
CT-U 420	430	plain	carbon 800 tex	EC 9 - 68 tex	0,40
CT-U 520	525	plain	carbon 800 tex	EC 9 - 68 tex	0,50
CT-U 800	835	plain	carbon 1600 tex	EC 9 - 136 tex	0,81
CT-U 1200	1200	plain	carbon 1600 tex	EC 9 - 136 tex	1,20
KDU 1007/10	200	UD	carbon 200 tex	-	0,20
KDU 1017/3,5	280	UD	carbon 200 tex	-	0,25
KDU 1002/2,5	320	UD	carbon 400 tex	-	0,37
KDU 1024/7,5	300	UD	carbon 400 tex	-	0,37
KDU 1042/4,5	300	UD	carbon 400 tex	-	0,37
KDU 1009/7,5	300	UD	carbon 400 tex	-	0,37
KDU 1012/16	300	UD	carbon 400 tex	-	0,37
KDU 1048/4,5	300	UD	carbon 800 tex	-	0,50
KDU 1001/7,5	300	UD	carbon 800 tex	-	0,50
KDU 1034/10	380	UD	carbon 800 tex	-	0,50
KDU 1006/16	380	UD	carbon 800 tex	-	0,50
KDU 1051/4,5	450	UD	carbon 800 tex	-	0,60



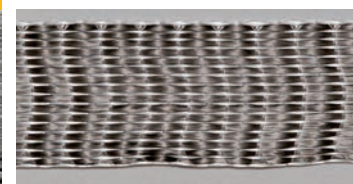
CT-U 175



CT-U 330



CT-U 800



KDU 1002/2,5

Carbon braided tapes

Reference	Areal weight (kg/100 m)	Width (mm) stretched / flat	Width at 45°	Wall thickness (mm)
Carbon tape 030.265321-CB	1,482	23 / 30	30	0,38
Carbon tape 040.465383-CB	1,316	21 / 40	40	0,30
Carbon tape 050.465126-CB	2,64	32 / 50	50	0,50
Carbon tape 050.265321-CB2	2,66	35 / 50	50	0,30

Carbon braided sleeves

Reference	Areal weight (kg/100 m)	Nominal diameter (mm)	Diameter for use (mm)	Wall thickness (mm)
Carbon sleeving 005.224251-C	0,166	5	1,5 - 7	0,15
Carbon sleeving 007.232251-C	0,217	7	1 - 9	0,17
Carbon sleeving 008.324241-C	0,853	10	2 - 12	0,45
Carbon sleeving 008.240281-C	0,275	8	2,5 - 11	0,30
Carbon sleeving 010.240251-C	0,269	10	2 - 12	0,17
Carbon sleeving 010.348421-C	0,330	10	3 - 13	0,15
Carbon sleeving 010.324213-C	0,480	10	2 - 12	0,28
Carbon sleeving 010.232203-C	0,657	10	3 - 12	0,28
Carbon sleeving 010.232193-C	0,660	10	3 - 12	0,34
Carbon sleeving 011.348423-C	1,022	11	5 - 13	0,34
Carbon sleeving 014.52111-C	0,352	14	3 - 16	0,16
Carbon sleeving 014.324153-C2	0,982	14	3 - 16	0,38
Carbon sleeving 015.348273-C	0,995	15	6 - 20	0,32
Carbon sleeving 015.252201-C	0,350	15	3 - 18	0,15
Carbon sleeving 020.340186-C	1,650	20	5 - 25	0,50
Carbon sleeving 025.8440363-C	1,742	25	10 - 28	0,35
Carbon sleeving 026.248113-C	0,943	26	5 - 32	0,25
Carbon sleeving 030.8440241-C	0,556	30	7 - 38	0,17
Carbon sleeving 030.10040323-C	2,180	30	12 - 36	0,32

CARBON REINFORCEMENTS

Carbon braided sleeves

Reference	Areal weight (kg/100 m)	Nominal diameter (mm)	Diameter for use (mm)	Wall thickness (mm)
Carbon sleeving 030.4602312-C	5,253	30	12 - 38	0,65
Carbon sleeving 030.48722250-C	18,200	30	14 - 80	1,65
Carbon sleeving 032.14430341-C	0,997	32	11 - 38	0,12
Carbon sleeving 035.10040263-C	2,060	35	12 - 40	0,39
Carbon sleeving 040.10040246-C	4,297	40	16 - 50	0,45
Carbon sleeving 045.10040223-C	2,016	45	11 - 55	0,23
Carbon sleeving 045.12040263-C	2,480	45	15 - 52	0,31
Carbon sleeving 050.8470306-C	3,485	50	12 - 60	0,33
Carbon sleeving 060.12044203-C	2,470	60	14 - 75	0,25
Carbon sleeving 070.14442223-C	2,980	70	20 - 85	0,25
Carbon sleeving 080.16866346-C	7,085	80	30 - 92	0,42

Carbon roving

Reference	Linear density	Filaments	Tensile strength	Tensile modulus
Aksaca® AKSA A-42	1600 tex	f 24 000	4 200 MPa	240 GPa
DIALEAD® K63712	800 tex	f 12 000	2 600 MPa	640 GPa
GRAFIL 34-700 WD	1600 tex	f 24 000	4 830 MPa	234 GPa
GRANOC Yarn CN-60	890 tex	f 6 000	3 430 MPa	620 GPa
GRANOC Yarn CN-80	890 tex	f 6 000	3 430 MPa	780 GPa
TAIRYFIL TC-35 24K	800 tex	f 12 000	4 000 MPa	240 GPa
Tenax® HTS40 F13 12K 800tex	800 tex	f 12 000	4 300 MPa	238 GPa
Tenax® HTS40 F13 24K 1600tex	1600 tex	f 24 000	4 300 MPa	238 GPa
Tenax® IMS65 E23 24K 830tex	830 tex	f 24 000	6 000 MPa	290 GPa
Tenax® STS40 F13 24K 1600tex	1600 tex	f 24 000	4 000 MPa	240 GPa
Tenax® UMS40 F23 24K 800tex	800 tex	f 24 000	4 560 MPa	395 GPa
Torayca® FT300/300	66 tex	f 1 000	3 530 MPa	230 GPa
Torayca® FT300/300	198 tex	f 3 000	3 530 MPa	230 GPa
Torayca® FT300/300	396 tex	f 6 000	3 530 MPa	230 GPa

This chart involves a general overview of carbon fibres for information. The availability needs to be checked at specific request.

Carbon roving

Reference	Linear density	Filaments	Tensile strength	Tensile modulus
Torayca® FT300/300	800 tex	f 12 000	3 530 MPa	230 GPa
Torayca® T300J	198 tex	f 3 000	4 210 MPa	230 GPa
Torayca® T300J	396 tex	f 6 000	4 210 MPa	230 GPa
Torayca® T300J	800 tex	f 12 000	4 210 MPa	230 GPa
Torayca® T400H	198 tex	f 3 000	4 410 MPa	250 GPa
Torayca® T400H	396 tex	f 6 000	4 410 MPa	250 GPa
Torayca® T700SC	800 tex	f 12 000	4 900 MPa	230 GPa
Torayca® T700SC	1650 tex	f 24 000	4 900 MPa	230 GPa
Torayca® T700GC	800 tex	f 12 000	4 900 MPa	240 GPa
Torayca® T700GC	1650 tex	f 24 000	4 900 MPa	240 GPa
Torayca® T800H	223 tex	f 6 000	5 490 MPa	294 GPa
Torayca® T800H	445 tex	f 12 000	5 490 MPa	294 GPa
Torayca® T800SC	1040 tex	f 24 000	5 880 MPa	294 GPa
Torayca® T1000G	485 tex	f 12 000	6 370 MPa	294 GPa
Torayca® M35J	225 tex	f 6 000	4 510 MPa	343 GPa
Torayca® M35J	450 tex	f 12 000	4 700 MPa	343 GPa
Torayca® M40J	225 tex	f 6 000	4 400 MPa	377 GPa
Torayca® M40J	450 tex	f 12 000	4 400 MPa	377 GPa
Torayca® M46J	223 tex	f 6 000	4 200 MPa	436 GPa
Torayca® M46J	445 tex	f 12 000	4 020 MPa	436 GPa
Torayca® M50J	216 tex	f 6 000	4 120 MPa	475 GPa
Torayca® M55J	218 tex	f 6 000	4 020 MPa	540 GPa
Torayca® M60J	103 tex	f 3 000	3 820 MPa	588 GPa
Torayca® M60J	206 tex	f 6 000	3 820 MPa	588 GPa
Torayca® M30S	760 tex	f 18 000	5 490 MPa	294 GPa
Torayca® M40	61 tex	f 1 000	2 740 MPa	392 GPa
Torayca® M40	364 tex	f 6 000	2 740 MPa	392 GPa
Torayca® M40	728 tex	f 12 000	2 740 MPa	392 GPa
ZOLTEK Panex® 35 50K	3600 tex		4 137 MPa	242 GPa

This chart involves a general overview of carbon fibres for information. The availability needs to be checked at specific request.

ARAMID REINFORCEMENTS

Balanced aramid fabrics (G. ANGELONI s.r.l.)

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density		Thickness (mm)
			Warp	Weft	
STYLE 120	60	plain	aramid 220 dtex	aramid 220 dtex	0,07
KK 140 P	140	plain	aramid 1210 dtex	aramid 1210 dtex	0,18
STYLE 281	170	plain	aramid 1210 dtex	aramid 1210 dtex	0,22
STYLE 285	170	4H satin	aramid 1210 dtex	aramid 1210 dtex	0,22
KK 170 T	170	twill 2/2	aramid 1210 dtex	aramid 1210 dtex	0,22
KK 170 F	170	fish	aramid 1210 dtex	aramid 1210 dtex	0,22
STYLE 284	170	plain	aramid 1610 dtex	aramid 1610 dtex	0,22
KK 220 P/T	220	plain / twill 2/2	aramid 1610 dtex	aramid 1610 dtex	0,25
KK 300 P/T/H	300	plain / twill / 5H satin	aramid 3320 dtex	aramid 3320 dtex	0,35
KK 400 PAN	400	panama	aramid 3420 dtex	aramid 3420 dtex	0,60
KK 460 P/T	460	plain/twill 2/2	aramid 3420 dtex	aramid 3420 dtex	0,60
KK 600 PAN	600	panama	aramid 3420 dtex	aramid 3420 dtex	0,60

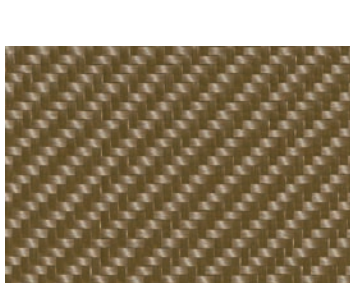
This chart contains only a part of the assortment of G.Angeloni. The complete information (catalogue) will be obtained on request.

Balanced aramid fabrics (C. Cramer GmbH & Co. KG)

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density		Thickness (mm)
			Warp	Weft	
Style 240	36	plain	aramid 22 tex	aramid 22 tex	0,10
Style 120	61	plain	aramid 22 tex	aramid 22 tex	0,12
Style 220	75	plain	aramid 42 tex	aramid 42 tex	0,15
Style 140	110	twill 2/2	aramid 42 tex	aramid 42 tex	0,20
Style 145	115	plain	aramid 42 tex	aramid 42 tex	0,20
Style 161	120	plain	aramid 127 tex	aramid 22 tex	0,20
Style 160	158	plain	aramid 158 tex	aramid 22 tex	0,28



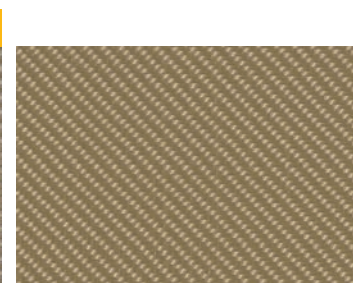
STYLE 281



KK 170 T



Style 240



Style 140

Balanced aramid fabrics (C. Cramer GmbH & Co. KG)

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density		Thickness (mm)
			Warp	Weft	
Style 344	160	scrim	aramid 158 tex	aramid 158 tex	0,50
Style 500	160	plain	aramid 158 tex	aramid 158 tex	0,30
Style 502	160	twill 2/2	aramid 158 tex	aramid 158 tex	0,30
Style 181	170	satin 1/7	aramid 42 tex	aramid 42 tex	0,30
Style 281	170	plain	aramid 127 tex	aramid 127tex	0,29
Style 284	170	twill 2/2	aramid 127 tex	aramid 127tex	0,30
Style 285	170	satin 3/1	aramid 127 tex	aramid 127tex	0,32
Style 332	195	twill 2/2	aramid 158 tex	aramid 158 tex	0,35
Style 335	230	satin 3/1	aramid 158 tex	aramid 158 tex	0,45
Style 328	230	plain	aramid 158 tex	aramid 158 tex	0,35
Style 333	230	twill 2/2	aramid 158 tex	aramid 158 tex	0,40
Style 343	230	scrim	aramid 158 tex	aramid 158 tex	0,60
Style 930	285	plain	aramid 158 tex	aramid 158 tex	0,47
Style 903	315	satin 1/4	aramid 240 tex	aramid 240 tex	0,56
Style 900	335	satin 1/4	aramid 240 tex	aramid 240 tex	0,60
Style 1000	365	satin 1/7	aramid 158 tex	aramid 158 tex	0,62
Style 1350	470	panama 4/4	aramid 240 tex	aramid 240 tex	0,78
Style 1355	470	twill 2/2	aramid 316 tex	aramid 316 tex	0,78
Style 1356	470	panama 3/3	aramid 316 tex	aramid 316 tex	0,81

Unidirectional aramid fabrics

Reference	Areal weight (g/sqm)	Weaving style	Material / linear density	Thickness (mm)
UD AS 200	200	2 scrim	aramid 805 tex	0,36
UD AS 300	300	2 scrim	aramid 805 tex	0,54

ARAMID REINFORCEMENTS

Balanced aramid tapes

Reference	Areal weight (g/sqm)	Weaving style	Material / linear density		Thickness (mm)
			Warp	Weft	
KT-B 170	170	plain	aramid 1210 dtex	aramid 1210 dtex	0,22
PDL 6045/8	180	plain	aramid 160 tex	aramid 160 tex	0,30
KT-B 220	225	plain	aramid 1610 dtex	aramid 1610 dtex	0,27
KT-U 150	150	plain	aramid 2420 dtex	aramid 220 tex	0,18
KT-U 200	200	plain	aramid 3220 dtex	aramid 220 tex	0,23

Aramid braided tapes

Reference	Areal weight (kg/100 m)	Width (mm) stretched / flat	Width at 45° (mm)	Wall thickness (mm)
Aramid tape 020.26534840-TB	0,625	18 / 22	20	0,25
Aramid tape 025.37443220-TB	1,369	12 / 25	25	0,60
Aramid tape 025.249211610-TB	0,872	17 / 25	25	0,30
Aramid tape 025.249211610-TB, black	0,84	17 / 25	25	0,30

Aramid cords

Reference	Areal weight (kg/100 m)	Diameter (mm)
Aramid cord 913	0,679	4
Aramid cord 1017	1,709	6

Aramid roving

Reference	Linear density	Filaments	Tensile strength	Tensile modulus
1000	840 dtex	f 500	2 909 MPa	78 GPa

This chart involves a general overview of aramid fibres for information. The availability needs to be checked at specific request
 * Twaron® adhesion activated yarn type.

Aramid roving

Reference	Linear density	Filaments	Tensile strength	Tensile modulus
1000	1100 dtex	f1 000	3 046 MPa	78 GPa
1000	1680 dtex	f1 000	2 916 MPa	71 GPa
1000	3360 dtex	f2 000	2 866 MPa	67 GPa
1014*	1100 dtex	f1 000	3 132 MPa	82 GPa
1014*	1680 dtex	f1 000	3 082 MPa	74 GPa
1015*	3360 dtex	f2 000	2 866 MPa	67 GPa
1040	1680 dtex	f1 000	2 916 MPa	70 GPa
1111	420 dtex	f 250	2 851 MPa	98 GPa
1055	1610 dtex	f1 000	2 929 MPa	110 GPa
1055	3220 dtex	f2 000	2 842 MPa	106 GPa
1055	8050 dtex	f5 000	2 778 MPa	104 GPa
1056	8050 dtex	f5 000	2 778 MPa	104 GPa
2200	1210 dtex	f1 000	3 154 MPa	108 GPa
2200	1610 dtex	f1 000	3 053 MPa	105 GPa
2200	2420 dtex	f2 000	3 067 MPa	105 GPa
2200	3220 dtex	f2 000	2 923 MPa	102 GPa
2200	4830 dtex	f3 000	2 973 MPa	103 GPa
2200	8550 dtex	f5 000	2 951 MPa	99 GPa

This chart involves a general overview of aramid fibres for information. The availability needs to be checked at specific request
 * Twaron® adhesion activated yarn type.

Twaron 1000



FIBERGLASS REINFORCEMENTS

Balanced glass fabrics EE

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density		Thickness (mm)
			Warp	Weft	
EE 23 P	23	plain	EC 5 - 5,5 tex	EC 5 - 5,5 tex	0,032
EE 33 P	33	plain	EC 5 - 5,5 tex	EC 5 - 11 tex	0,050
EE 50 P	47	plain	EC 5 - 11 tex	EC 5 - 11 tex	0,053
EE 80 P/T	86	plain / twill 2/2	EC 6 - 34 tex	EC 6 - 34 tex	0,09
EE 110 P/T	105	plain / twill 2/2	EC 6 - 34 tex	EC 6 - 34 tex	0,10
EE 140 P	146	plain	EC 11 - 102 tex	EC 11 - 102 tex	0,14
EE 160 P/T	166	plain / twill 2/2	EC 9 - 68 tex	EC 9 - 68 tex	0,14
EE 165 P	172	plain	EC 9 - 68 tex	EC 9 - 68 tex	0,17
EE 195 P/T	195	plain / twill 2/2	EC 13 - 136 tex	EC 13 - 136 tex	-
EE 200 P	201	plain	EC 9 - 68 tex	EC 9 - 68 tex	0,17
EE 211 T	213	twill 2/2	EC 9 - 68 tex	EC 9 - 68 tex	0,23
EE 220 P	224	plain	EC 11 - 105 tex	EC 11 - 204 tex	0,20
EE 280 P/T	282	plain / twill 2/2	EC 11 - 204 tex	EC 11 - 204 tex	0,30
EE 390 P/T	390	plain / twill 2/2	EC 13 - 272 tex	EC 13 - 272 tex	-

Balanced glass fabrics UNIGLASS

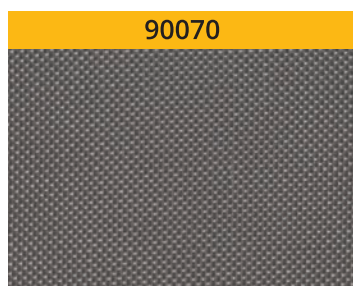
Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density		Thickness (mm)
			Warp	Weft	
UNIGLASS 48 P	48	plain	EC 5 - 11 tex	EC 5 - 12 tex	0,047
UNIGLASS 80 P/T	80	plain / twill 2/2	EC 6 - 33 tex	EC 6 - 33 tex	0,80
UNIGLASS 110 P/T	100	plain / twill 2/2	EC 6 - 33 tex	EC 6 - 33 tex	0,10
UNIGLASS 140 P	140	plain	EC 11 - 100 tex	EC 11 - 100 tex	0,14
UNIGLASS 163 P/T	163	plain / twill 2/2	EC 9 - 66 tex	EC 9 - 66 tex	0,14
UNIGLASS 200 P/T	200	plain / twill 2/2	EC 9 - 66 tex	EC 9 - 66 tex	0,17
UNIGLASS 220 P	220	plain	EC 11 - 100 tex	EC 11 - 198 tex	0,20
UNIGLASS 280 P/T	292	plain / twill 2/2	EC 11 - 198 tex	EC 11 - 198 tex	0,30
UNIGLASS 390 T	390	twill 2/2	EC 13 - 330 tex	EC 13 - 330 tex	-

Balanced glass fabrics INTERGLAS

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density		Thickness (mm)
			Warp	Weft	
02034/106	24,5	plain	EC 5 - 5,5 tex	EC 5 - 5,5 tex	0,03
02037/1080	47,5	plain	EC 5 - 11 tex	EC 5 - 11 tex	0,06
90070	81	plain	EC 9 - 34 tex	EC 9 - 34 tex	0,10
91111	105	twill 1/3	EC 5 - 11 x 2 tex	EC 5 - 11 x 2 tex	0,14
91106	116	plain	EC 5 - 11 x 2 tex	EC 5 - 11 x 2 tex	0,14
92100	163	plain	EC 9 - 136 tex	EC 9 - 136 tex	0,23
92110	163	twill 2/2	EC 9 - 68 tex	EC 9 - 68 tex	0,16
92110 black	163	twill 2/2	EC 9 - 68 tex	EC 9 - 68 tex	0,16
92112	200	plain	EC 9 - 136 tex	EC 9 - 136 tex	0,20
92145	220	UD plain	EC 9 - 68 x 5 t0 tex	EC 7 - 22 tex	0,25
92115	280	plain	EC 9 - 68 x 3 t0 tex	EC 9 - 204 tex	0,30
92125	280	twill 2/2	EC 9 - 68 x 3 t0 tex	EC 9 - 204 tex	0,35
92125 black	280	twill 2/2	EC 9 - 68 x 3 t0 tex	EC 9 - 204 tex	0,35
92140	390	twill 2/2	EC 9 - 68 x 5 t0 tex	EC 9 - 272 tex	0,45

Glass fabrics for production of moulds

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density		Thickness (mm)
			Warp	Weft	
Glass fabric K-5043	400	twill 2/2	E-glass roving 430 tex	E-glass roving 430 tex	1,200



90070



92112



92125 black



92140

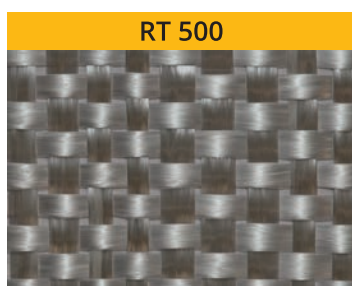
FIBERGLASS REINFORCEMENTS

Glass roving fabrics

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density	Width (cm)
RT 300	300	plain	E-glass roving	125
RT 350	350	plain	E-glass roving	125
RT 500	500	plain	E-glass roving	125
RT 800	800	plain	E-glass roving	125
RT 900	900	plain	E-glass roving	125

Metallized glass fabrics ALUTEX

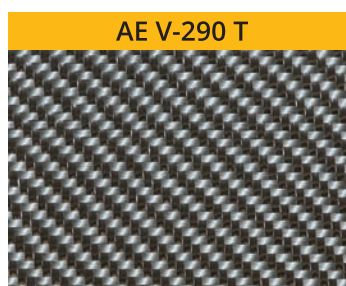
Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density		Thickness (mm)
			Warp	Weft	
AE V-202 T	200	twill 2/2	EC 9 - 68 tex	EC 9 - 68 tex	0,20
AE V-240 F	240	fish	EC 9 - 136 tex	EC 9 - 136 tex	0,24
AE V-290 T	290	twill 2/2	EC 9 - 68×3 tex	EC 11 - 204 tex	0,28
AE V-6036	295	granite	EC 9 - 68×3 tex	EC 9 - 136 tex	0,30
AE V-6041	295	honeycomb	EC 9 - 68×3 tex	EC 9 - 136 tex	0,30
AE V-6039	295	knot	EC 9 - 68×3 tex	EC 9 - 136 tex	0,30
AE V-6040	295	cut twill	EC 9 - 68×3 tex	EC 9 - 136 tex	0,30
AE V-6082	295	electric	EC 9 - 68×3 tex	EC 9 - 136 tex	0,30
AE V-350 P/T	350	plain / twill 2/2	glass roving 320 tex	glass roving 320 tex	0,35



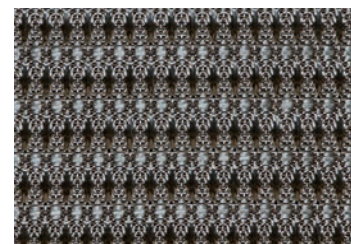
RT 500



AE V-240 F



AE V-290 T



AE V-6041



Metallized glass fabrics CUPTEX, TITANTEX, GOLDTEX

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density		Thickness (mm)
			Warp	Weft	
CE V-202 T (copper)	200	twill 2/2	EC 9 - 68 tex	EC 9 - 68 tex	0,20
CE V-290 T (copper)	290	twill 2/2	EC 9 - 68x3 tex	EC 11 - 204 tex	0,28
TE V-202 T (titanium)	200	twill 2/2	EC 9 - 68 tex	EC 9 - 68 tex	0,20
TE V-290 T (titanium)	290	twill 2/2	EC 9 - 68x3 tex	EC 11 - 204 tex	0,28
GE V-202 T (gold)	200	twill 2/2	EC 9 - 68 tex	EC 9 - 68 tex	0,20
GE V-290 T (gold)	290	twill 2/2	EC 9 - 68x3 tex	EC 11 - 204 tex	0,28

Unidirectional glass fabrics (with PES scrim)

Reference	Areal weight (g/sqm)	Construction	Material / Linear density	Thickness (mm)
UD EST 220	220	1 scrim	Glass roving 800 - 1200 tex	0,25
UD EST 250	250	1 scrim	Glass roving 800 - 1200 tex	0,27
UD EST 300	300	1 scrim	Glass roving 800 - 1200 tex	0,30
UD ES 500	500	2 scrim	Glass roving 1200 - 2400 tex	0,50
UD ES 600	600	2 scrim	Glass roving 1200 - 2400 tex	0,54

UD ES 500



FIBERGLASS REINFORCEMENTS

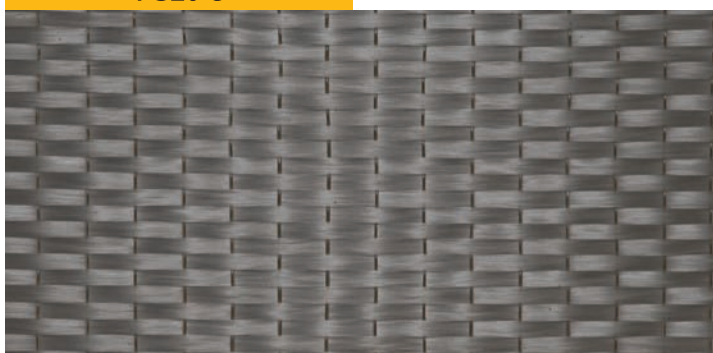
Unidirectional glass fabrics (with glass yarns)

Reference	Areal weight (g/sqm)	Construction	Material / Linear density		Thickness (mm)
V 220 U	220	plain	Glass roving 300 tex	EC 9 - 68 tex	0,20
V 320 U	330	plain	Glass roving 600 tex	EC 9 - 68 tex	0,30
V 420 U	420	plain	Glass roving 1200 tex	EC 9 - 136 tex	0,40
Vf 425 U	425	plain	EC 9 - 136x5 tex	EC 9 - 68 tex	0,40
V 430 U	430	plain	Glass roving 300 tex	EC 9 - 136 tex	0,41
V 520 U	520	plain	Glass roving 1200 tex	EC 9 - 136 tex	0,50
V 620 U	600	plain	Glass roving 1200 tex	EC 9 - 68 tex	0,60

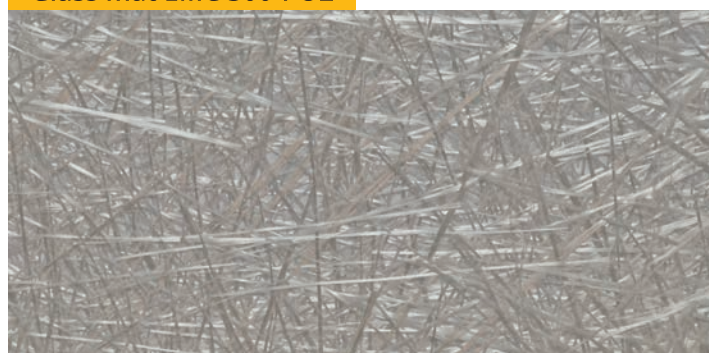
Glass non-woven fabrics

Reference	Areal weight (g/sqm)	Construction	Material / Linear density	Width (cm)
Glass mat EMC 100-PO2	100	powder	E-glass roving	125 - 130
Glass mat EMC 150-PO2	150	powder	E-glass roving	125 - 130
Glass mat EMC 225-PO2	225	powder	E-glass roving	125 - 130
Glass mat EMC 300-PO2	300	powder	E-glass roving	125 - 130
Glass mat EMC 450-PO2	450	powder	E-glass roving	125 - 130
Glass mat EMC 150-E	150	emulsion	E-glass roving	125 - 130
Glass mat EMC 225-E	225	emulsion	E-glass roving	125 - 130
Glass mat EMC 300-E	300	emulsion	E-glass roving	125 - 130
Glass mat EMC 450-E	450	emulsion	E-glass roving	125 - 130

V 320 U



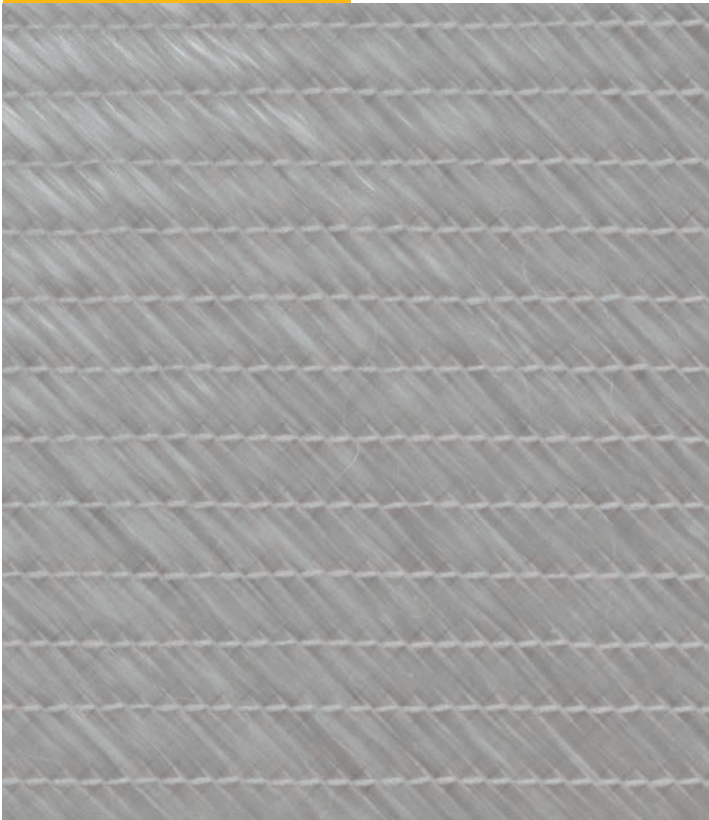
Glass mat EMC 300-PO2



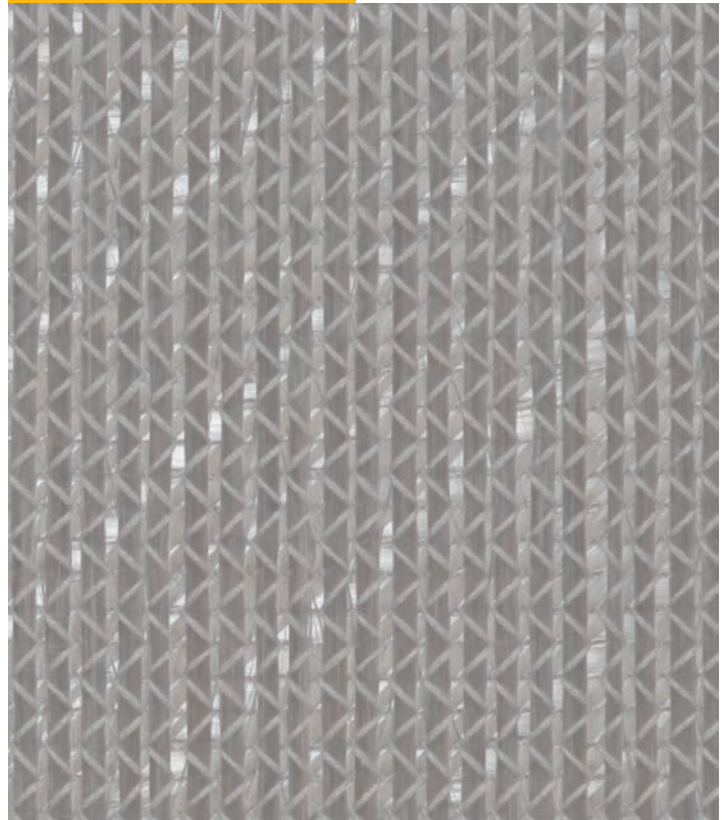
Multiaxial glass fabrics (stitched)

Reference	Areal weight (g/sqm)	Construction	Material / Linear density	Thickness (mm)
EBX 200	210	± 45°	Glass roving 198 tex	-
EBX 250	260	± 45°	Glass roving 198 tex	-
EBX 300	321	± 45°	Glass roving 300 tex	-
EBX 400	411	± 45°	Glass roving 300 tex	-
EBX 450	464	± 45°	Glass roving 300 tex	-
EBX 600	605	± 45°	Glass roving 300 tex	-
EBX 800	816	± 45°	Glass roving 600 tex	-
EBX 900	906	± 45°	Glass roving 1200 tex	-
EBX 1200	1201	± 45°	Glass roving 1200 tex	-
EQX 600	618	0°/± 45°/90°	Glass roving 300 - 600 tex	-
EQX 820	819	0°/± 45°/90°	Glass roving 300 - 1200 tex	-
EQX 1200	1211	0°/± 45°/90°	Glass roving 300 - 1200 tex	-

EBX 600



EQX 600



FIBERGLASS REINFORCEMENTS

Balanced and unidirectional glass tapes

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density		Thickness (mm)
			Warp	Weft	
ET-B 160	160	plain	EC 9 - 22 tex	EC 9 - 22 tex	0,08
ET-B 220	220	plain	EC 9 - 136 tex	EC 9 - 68 tex	0,20
ET-U 300	315	plain	Glass roving 600 tex	EC 9 - 68 tex	0,31
ET-U 400	410	plain	Glass roving 1200 tex	EC 9 - 68 tex	0,40
ET-U 401	415	plain	Glass roving 320 tex	EC 9 - 68 tex	0,40
ET-U 500	535	plain	Glass roving 2400 tex	EC 9 - 136 tex	0,46
ET-U 501	510	plain	Glass roving 1200 tex	EC 9 - 136 tex	0,45
ET-U 600	605	plain	Glass roving 1200 tex	EC 9 - 136 tex	0,50
ET-U 601	655	plain	Glass roving 2400 tex	EC 9 - 136 tex	0,51
ET-U 800	800	plain	Glass roving 2400 tex	EC 9 - 136 tex	0,65
ET-U 850	850	plain	Glass roving 2400 tex	EC 9 - 136 tex	0,67
ET-U 900	920	plain	Glass roving 2400 tex	EC 9 - 204 tex	0,72
ET-U 1000	1015	plain	Glass roving 1200 tex	EC 9 - 204 tex	0,85
ET-U 1200	1280	plain	Glass roving 2400 tex	EC 9 - 204 tex	0,98

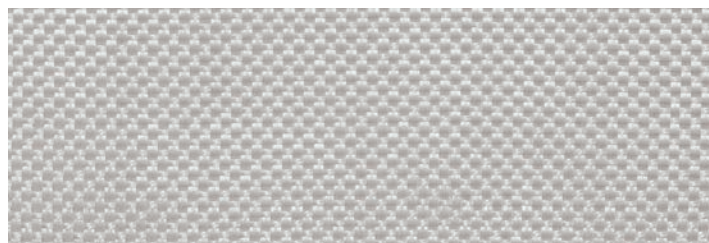
Balanced tapes with tracer

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density		Thickness (mm)
			Warp	Weft	
119840100	110	plain, blue tracer	EC 5 - 22 tex	EC 5 - 5,5×2 tex	0,08
119840200	110	plain, blue tracer	EC 5 - 22 tex	EC 5 - 5,5×2 tex	0,08
119848200	150	plain, red tracer	EC 9 - 34 tex	EC 9 - 34 tex	0,10
119848400	150	plain, red tracer	EC 9 - 34 tex	EC 9 - 34 tex	0,10
119848500	150	plain, red tracer	EC 9 - 34 tex	EC 9 - 34 tex	0,10

ET-B 160



ET-B 220



Glass braided tapes

Reference	Areal weight (kg/100 m)	Width (mm) stretched / flat	Width at 45°	Wall thickness (mm)
Glass tape 030.265262136-SB	1,921	20 / 30	30	0,31

Glass braided sleeves

Reference	Areal weight (kg/100 m)	Nominal diameter (mm)	Diameter for use (mm)	Wall thickness (mm)
Glass sleeve 005.2815136-S	0,413	5	1 - 6	0,25
Glass sleeve 010.32418136-S	0,328	10	1 - 12	0,14
Glass sleeve 010.4815136-S	0,690	10	4 - 11	0,25
Glass sleeve 012.26028136-S	0,849	12	4 - 15	0,21
Glass sleeve 015.27230136-S	1,037	15	9 - 18	0,21
Glass sleeve 018.26020-SZ	0,413	18	3 - 22	0,23
Glass sleeve 020.1003034136-S	1,408	20	7 - 26	0,24
Glass sleeve 023.1003032342-SZ	0,711	23	5 - 26	0,14
Glass sleeve 025.1003028136-S	1,420	25	7 - 30	0,22
Glass sleeve 025.252122136-S	1,457	25	5 - 26	0,30
Glass sleeve 030.10040322136-S	2,905	30	10 - 36	0,26
Glass sleeve 030.1004032342-SZ	0,710	30	6 - 35	0,14
Glass sleeve 032.1203028136-S	1,685	32	9 - 34	0,25
Glass sleeve 040.144403612136-S	2,987	40	14 - 50	0,24
Glass sleeve 043.10040222136-S	2,835	43	10 - 54	0,27
Glass sleeve 050.1204022342-SZ	0,838	50	6 - 60	0,10
Glass sleeve 050.12040222136-S	3,406	50	14 - 60	0,26
Glass sleeve 055.14440242136-S	4,053	55	16 - 65	0,26
Glass sleeve 060.1444022136-S	2,000	60	12 - 75	0,20

Glass roving

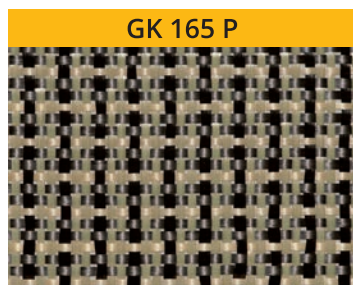
Reference	Linear density	Filament diameter
PR 440 2400 908	2400 tex	16 µm
EC14 - 2400 - P185	2400 tex	14 µm

HYBRID AND OTHER REINFORCEMENTS

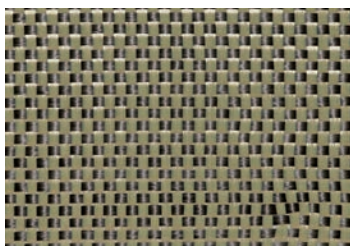
Balanced hybrid fabrics (G. ANGELONI s.r.l.)

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density
			Warp
GK 160 P	167	plain	carbon 200 tex + aramid 1670 dtex
GK 161 P	167	plain	carbon 200 tex + aramid 1670 dtex
GK 165 P	165	plain	carbon 200 tex + aramid 1670 dtex
GK 170 P	170	plain	carbon 200 tex + aramid 1210 dtex
GK 180 P	178	plain	carbon 200 tex + aramid 1210 dtex
GK 191 P/T	190	plain/twill 2/2	carbon 200 tex
GK 210 T	210	twill 2/2	carbon 200 tex + aramid 1210 dtex
GK 210 SW	210	satin 4H	carbon 200 tex
KG 190 T	190	twill 2/2	carbon 200 tex + aramid 1210 dtex
DK 170 P	170	plain	black polyester 1670 dtex + aramid 1210 dtex
GD 200 T	190	twill 2/2	carbon 200 tex
DRAC 250 P	250	plain	glass + aramid + black polyester + carbon
GVcT 200 P/T	195	plain / twill 2/2	carbon 200 tex + black vectran 1670 dtex
GVcT 260 P	260	plain	carbon 800 tex + black vectran 1670 dtex
VcT 170 P	170	plain	black vectran + natural vectran 1670 dtex
VcT 190 P	185	plain	black vectran + natural vectran 1670 dtex
VcT 200 T	200	twill 2/2	black vectran + natural vectran 1670 dtex
VG 160 P	160	plain	carbon 200 tex
VK 250 T	250	twill 2/2	EC 11 - 204 tex + aramid 1210 dtex
VK 251 P	250	plain	glass roving 300 tex
VK 390 T	390	twill 2/2	glass roving 600 tex + aramid 2420 dtex

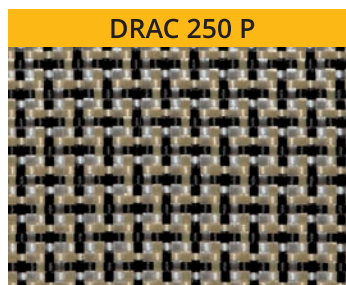
This chart contains only a part of the assortment of G. Angeloni. The complete information (catalogue) will be obtained on request.



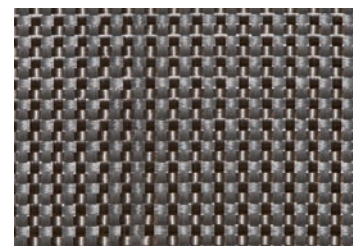
GK 165 P



GK 191 P



DRAC 250 P

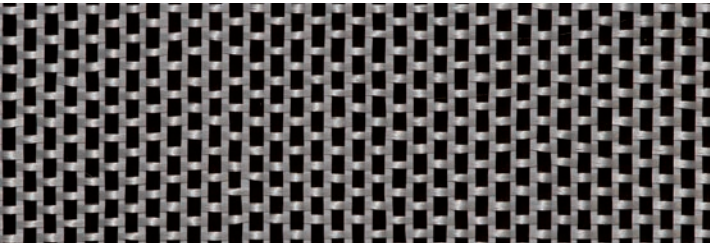
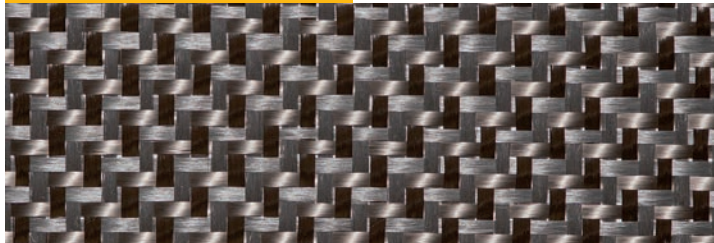


GVcT 200 P



Material / Linear density	Thickness (mm)
Weft	
carbon 200 tex + aramid 1670 dtex	0,18
carbon 200 tex + aramid 1670 dtex	0,17
carbon 200 tex + aramid 1670 dtex	0,17
carbon 200 tex + aramid 1210 dtex	0,16
carbon 200 tex + aramid 1210 dtex	0,17
aramid 1210 dtex	0,22
carbon 200 tex + aramid 1210 dtex	0,24
aramid 1210 dtex	0,24
carbon 200 tex + aramid 1210 dtex	0,22
black polyester 1670 dtex + aramid 1210 dtex	0,17
black polyester 1100 dtex	0,20
glass + aramid + black polyester + carbon	0,25
carbon 200 tex + black vectran 1670 dtex	0,24
carbon 800 tex + black vectran 1670 dtex	-
black vectran + natural vectran 1670 dtex	0,20
black vectran + natural vectran 1670 dtex	0,24
black vectran + natural vectran 1670 dtex	-
EC 11 - 204 tex	-
EC 11 - 204 tex + aramid 1210 dtex	0,26
aramid 1210 dtex	0,27
glass roving 600 tex + aramid 2420 dtex	0,40

VcT 200 T



VG 160 P

HYBRID AND OTHER REINFORCEMENTS

Balanced hybrid aramid-carbon fabrics (C. Cramer GmbH & Co. KG)

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density
			Warp
Style 624	65	plain	carbon 67 tex
Style 664	71	plain	carbon + aramid 67/42
Style 648	96	plain	aramid + carbon 42/67
Style 638	110	plain	aramid + carbon 42/67
Style 642	150	plain	aramid + carbon 127/200
Style 658	156	satin 3/1	carbon 200 tex
Style 654	157	plain	carbon 200 tex
Style 649	160	twill 2/2	carbon + aramid 200/158
Style 630	165	plain	aramid + carbon 158/200
Style 666	175	plain	aramid + carbon 127/200
Style 636	180	plain	aramid + carbon 158/200
Style 601	205	twill 2/2	aramid + carbon 127/200
Style 635	210	satin 3/1	aramid + carbon 127/200
Style 646	215	plain	aramid 127 tex
Style 640	225	satin 3/1	carbon 200 tex
Style 633	240	twill 2/2	aramid + carbon 158/200
Style 634	256	twill 2/2	aramid + carbon 158/200

Balanced hybrid polyethylene-carbon fabrics (C. Cramer GmbH & Co. KG)

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density
			Warp
Style 687	185	satin 1/3	Dyneema 176 tex + carbon 200 tex
Style 688	190	twill 2/2	carbon 200 tex + Dyneema 176 tex
Style 681	210	plain	Dyneema 132 tex + carbon 200 tex
Style 680	235	plain	carbon 200 tex + Dyneema 132 tex
Style 682	240	twill 2/2	carbon 200 tex + Dyneema 132 tex



Material / Linear density	Thickness (mm)
Weft	
aramid 22 tex	0,11
carbon + aramid 67/42	0,14
aramid + carbon 42/67	0,18
aramid + carbon 42/67	0,16
aramid + carbon 127/200	0,28
aramid 22 tex	0,25
aramid 22 tex	0,25
aramid 158 tex	0,36
aramid + carbon 158/200	0,30
aramid + carbon 127/200	0,30
aramid + carbon 158/200	0,31
aramid + carbon 127/200	0,35
aramid + carbon 127/200	0,37
carbon 200 tex	0,34
aramid 127 tex	0,38
aramid + carbon 158/200	0,40
aramid + carbon 158/200	0,40



Material / Linear density	Thickness (mm)
Weft	
Dyneema 176 tex + carbon 200 tex	0,50
carbon 200 tex + Dyneema 176 tex	0,47
Dyneema 132 tex + carbon 200 tex	0,43
carbon 200 tex + Dyneema 176 tex	0,42
carbon 200 tex + Dyneema 132 tex	0,50

HYBRID AND OTHER REINFORCEMENTS

Balanced hybrid glass-carbon fabrics (C. Cramer GmbH & Co. KG)

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density
			Warp
Style 762	120	plain	carbon 200 tex
Style 763	140	plain	carbon 200 tex
Style 756	160	plain	carbon 200 tex
Style 761	170	plain	carbon 200 tex
Style 752	175	plain	carbon 200 tex + EC 13 - 136 tex
Style 778	176	plain	carbon 200 tex
Style 796	270	plain	carbon 400 tex
Style 772	272	twill 2/2	carbon 200 tex + EC 11 - 204 tex
Style 777	285	twill 3/2	carbon 200 tex + EC 9 - 68 tex
Style 759	540	plain	carbon 800 tex
Style 764	570	plain	carbon 800 tex
Style 755	635	plain	carbon 1600 tex
Style 735	780	panama 2/2	EC roving 1200 tex + carbon 800 tex

Balanced and unidirectional hybrid tapes

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density
			Warp
CKT-B 165	168	plain	carbon 200 tex
CKT-B 175	174	plain	carbon 200 tex
CKT-B 190	188	plain	carbon 200 tex
KCKT-B 170	176	plain	aramid 1610 dtex + carbon 200 tex
CDT-B 185	185	plain	carbon 200 tex
PDU 2024/6,5	155	UD	carbon 200 tex + aramid

Style 763

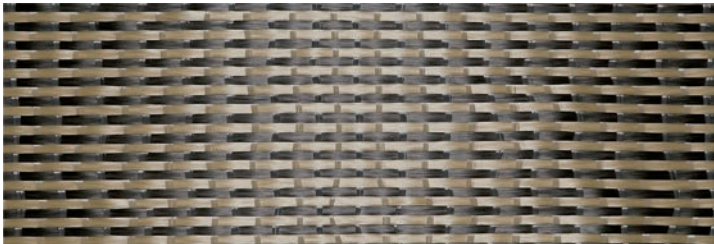
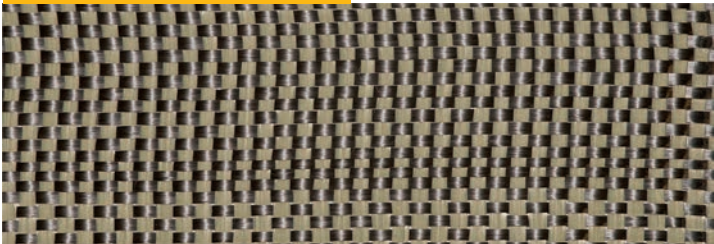




Material / Linear density	Thickness (mm)
Weft	
EC 6 - 34 tex	0,19
EC 6 - 34 tex	0,20
EC 5 - 5,5x2 tex	0,21
EC 9 - 68 tex	0,25
carbon 200 tex + EC 13 - 136 tex	0,25
EC 13 - 136 tex	0,25
EC 6 - 34 tex	0,35
EC 11 - 204 tex	0,37
carbon 200 tex + EC 9 - 68 tex	0,41
EC 9 - 68 tex	0,71
EC 9 - 68 tex	0,68
EC 9 - 68 tex	0,87
EC roving 1200 tex + carbon 800 tex	0,84

Material / Linear density	Wall thickness (mm)
Weft	
aramid 1210 dtex	0,18
aramid 1210 dtex	0,19
aramid 1210 dtex	0,22
aramid 1610 dtex	0,20
polyester Diolen 1670 dtex	0,20
	0,20

CKT-B 200



PDU 2024/6,5

HYBRID AND OTHER REINFORCEMENTS

Hybrid braided sleeves

Reference	Areal weight (kg/100 m)	Nominal diameter (mm)
Aramid-carbon sleeve 018.34824-ACT2	1,655	18
Aramid-carbon sleeve 026.34818-ACT2	1,621	26
Glass-carbon sleeve 030.8440261-KSZC	0,560	30
Aramid-carbon sleeve 032.844026-ACT2	2,847	32
Glass-carbon sleeve 034.10042302136-KCS	2,679	34
Aramid-carbon sleeve 045.1004022-ACT2	3,352	45
Glass-carbon sleeve 050.12040222136-KCS1	3,498	50
Glass-diolen sleeve 060.1444022300-KDS1	4,130	60

Balanced polyester fabrics

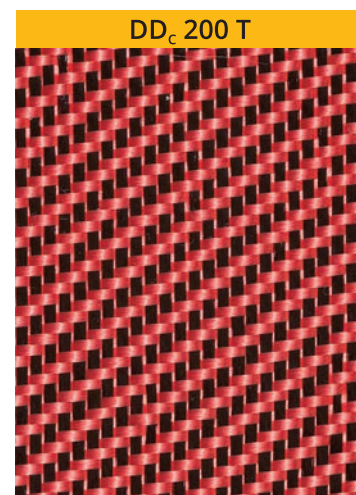
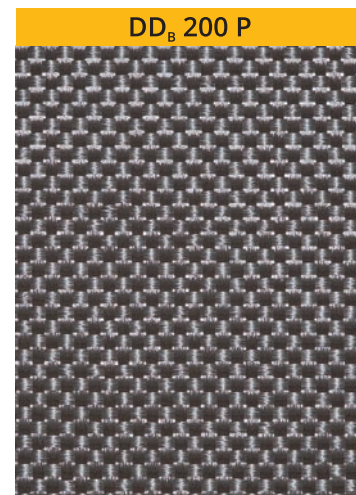
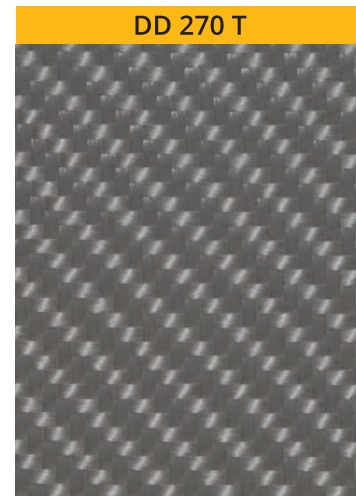
Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density
			Warp
DD 170 P	170	plain	HM polyester 1670 dtex
DD 200 P/T	200	plain / twill 2/2	HM polyester 1670 dtex
DD 270 P/T	270	plain / twill 2/2	HM polyester 3300 dtex
DD 440 T	440	twill 2/2	HM polyester 220 tex
DD _B 200 P/T	200	plain / twill 2/2	black HM polyester 1670 dtex
DD _C 200 P/T	200	plain / twill 2/2	black HM polyester 1670 dtex

Balanced polyester tapes

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density
			Warp
DT-B 170	170	plain	polyester Diolen 1670 dtex
DT-B 200	200	plain	polyester Diolen 1670 dtex



Diameter for use (mm)	Wall thickness (mm)
18	0,40
6 - 28	0,40
6 - 38	0,15
13 - 38	0,41
12 - 42	0,32
16 - 53	0,38
14 - 60	0,30
20 - 80	0,30



Material / Linear density	Thickness (mm)
Weft	
HM polyester 1670 dtex	0,20
HM polyester 1670 dtex	0,25
HM polyester 3300 dtex	0,33
HM polyester 220 tex	0,50
black HM polyester 1670 dtex	0,25
coloured HM polyester 1100 dtex	0,25

Material / Linear density	Thickness (mm)
Weft	
polyester Diolen 1670 dtex	0,22
polyester Diolen 1670 dtex	0,24

HYBRID AND OTHER REINFORCEMENTS

Balanced hybrid aramid-carbon fabrics (SGL TECHNOLOGIES GmbH)

Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density	
			Warp	
PDL 9018	165	plain	carbon 200 tex + aramid 160 tex	
PDK 9004	200	twill 2/2	carbon 200 tex + aramid 160 tex	

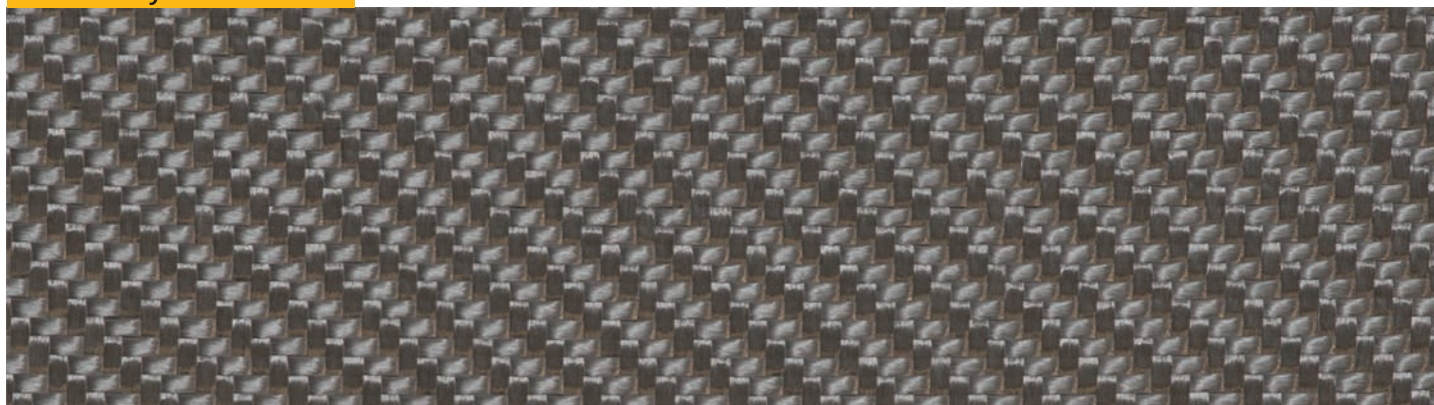
Polyester braided tapes

Reference	Areal weight (kg/100 m)	Width (mm) stretched / flat	Width (mm)	Wall thickness (mm)
Polyester tape 2238	0,387	12 - 20	20 mm	0,18
Polyester tape 2731	0,990	20 - 30	30 mm	0,32

Balanced polyethylene fabrics DYNEEMA®

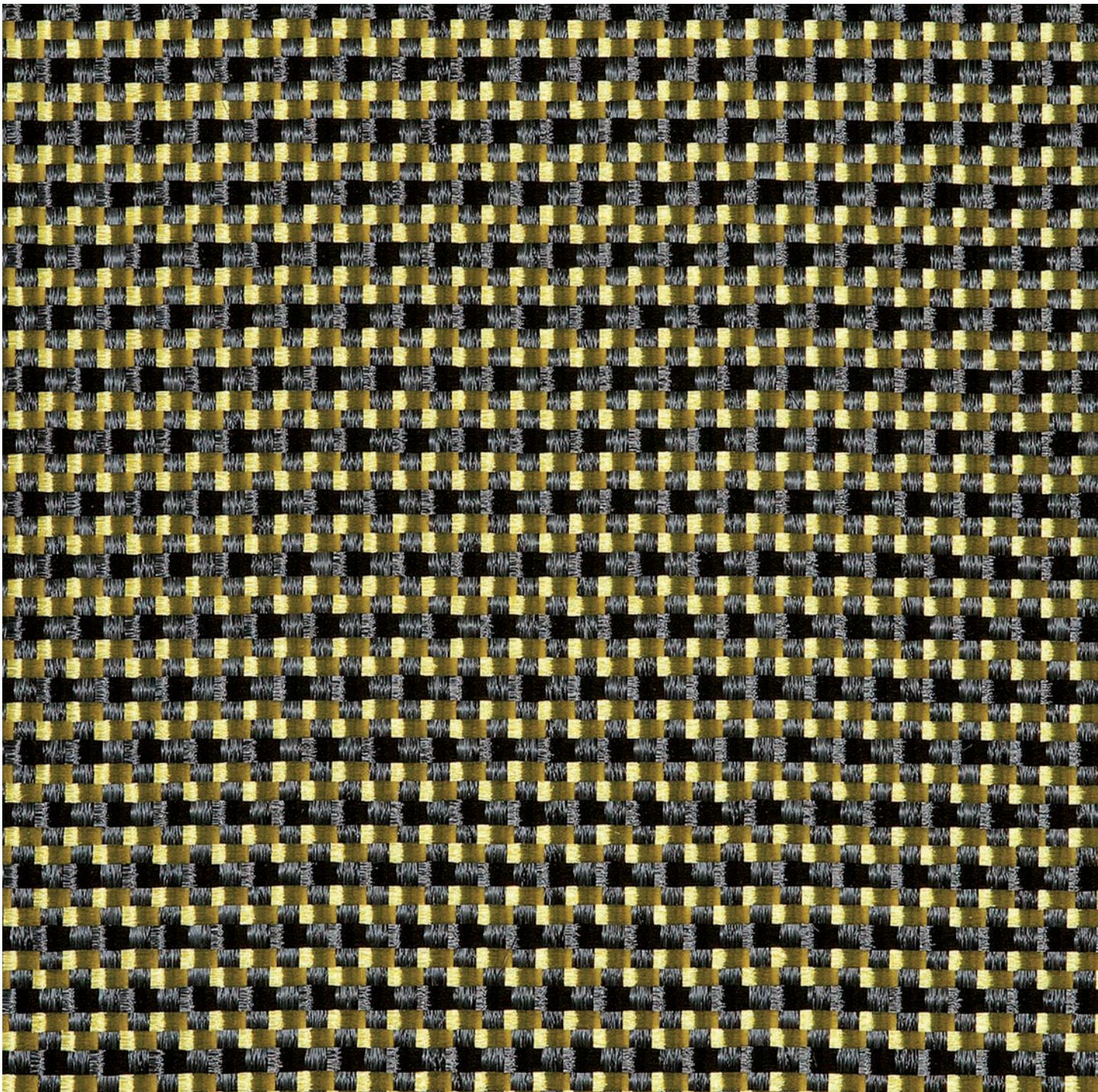
Reference	Areal weight (g/sqm)	Weaving style	Material / Linear density		Thickness (mm)
			Warp	Weft	
Style 357	35	plain	Dyneema SK 65	Dyneema SK 65	0,16
Style 354	130	plain	Dyneema SK 65	Dyneema SK 65	0,37
Style 359	160	twill 2/2	Dyneema SK 65	Dyneema SK 65	0,45
Style 351-1	180	twill 3/1	Dyneema SK 75	Dyneema SK 75	0,54

Style 359





Material / Linear density	Thickness
Weft	(mm)
aramid 160 tex + carbon 200 tex	0,25
carbon 200 tex + aramid160 tex	0,30



SANDWICH STRUCTURES

C 70 / C 71

Reference	Areal weight (kg/m ³)	Sheet dimensions (mm)			Temperature resistance
		width	length	thickness	
C 70.40	40	1330	2850	5 - 80	80°C
C 70.48	48	1270	2730	5 - 70	80°C
C 70.55	60	1150	2450	1,2 - 70	85°C
C 70.75	80	1020 / 1080	2180 / 1500	1,2 - 70	85°C
C 71.75	80	1000	2150	2 - 70	100°C
C 70.90	100	950	2050	1,2 - 60	90°C
C 70.130	130	850	1900	5 - 50	95°C
C 70.200	200	750	1600	5 - 40	100°C

C 70 / C 71 scrim

Reference	Areal weight (kg/m ³)	Sheet dimensions (mm)			Temperature resistance
		width	length	thickness	
C 70.40 scrim	40	690	1200	5 - 30	80°C
C 70.48 scrim	48	660	1200	5 - 25	80°C
C 70.55 scrim	60	600	1140	5 - 25	85°C
C 70.75 scrim	80	480	1080	5 - 25	85°C
C 71.75 scrim	80	1000	1070	5 - 25	100°C
C 70.90 scrim	100	510	930	5 - 25	90°C
C 70.130 scrim	130		on request		95°C
C 70.200 scrim	200		on request		100°C



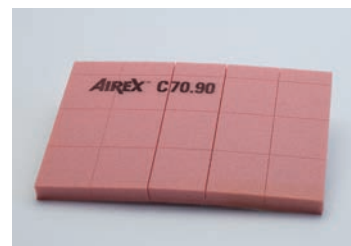
C 70.55



C 70.75



C 70.55 scrim



C 70.90 scrim

R 63

Reference	Areal weight (kg/m ³)	Sheet dimensions (mm)			Temperature resistance
		width	length	thickness	
R 63.50	60	1300 / 1400	2900 / 3100	5 - 50	
R 63.80	90	1200	2700	2 - 30	
R 63.140	140	1050	2400	3 - 20	

ROHACELL® IG/IG-F

Reference	Areal weight (kg/m ³)	Sheet dimensions (mm)			Temperature resistance
		width	length	thickness	
RHC.31	32	625 / 1250	1250 / 2500	4 - 85	180°C
RHC.51	52	625 / 1250	1250 / 2500	1 - 70	180°C
RHC.71	75	625 / 1250	1250 / 2500	3 - 60	180°C
RHC.110	110	1100	2160	4 - 65	180°C

PUR sheets (polyurethane)

Reference	Areal weight (kg/m ³)	Sheet dimensions (mm)		
		width	length	thickness
PUR 35	33	1000	1200	10 mm and more
PUR 40	40	1200	2000	10 mm and more
PUR 50	50	1200	2000	10 mm and more
PUR 80	80	1200	2000	10 mm and more



R 63.80



C70/C71



R63



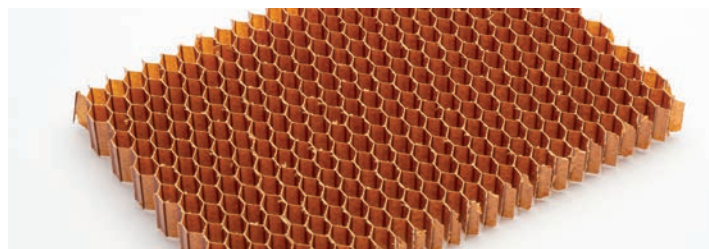
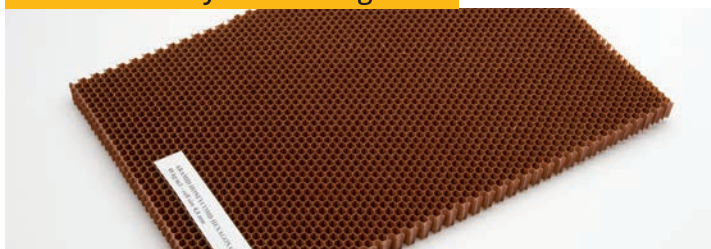
ROHACELL® IG/IG-F

SANDWICH STRUCTURES

Aramid honeycombs

Reference	Type	Cell size (mm)	Sheet dimensions (mm)		
			width	length	thickness
Aramid honeycomb 24 kg/m ³	hexagonal	6.4	1220 (± 50)	2440 (± 75)	2 - 880
		9.6	1220 (± 50)	2440 (± 75)	2 - 880
		19.2	1220 (± 50)	2440 (± 75)	2 - 880
Aramid honeycomb 29 kg/m ³	hexagonal	4.0	1220 (± 50)	2440 (± 75)	2 - 880
		4.8	1220 (± 50)	2440 (± 75)	2 - 880
		6.4	1220 (± 50)	2440 (± 75)	2 - 880
Aramid honeycomb 32 kg/m ³	hexagonal	9.6	1220 (± 50)	2440 (± 75)	2 - 880
		12.8	1220 (± 50)	2440 (± 75)	2 - 880
		19.2	1220 (± 50)	2440 (± 75)	2 - 880
Aramid honeycomb 48 kg/m ³	hexagonal	3.2	1220 (± 50)	2440 (± 75)	2 - 880
		4.8	1220 (± 50)	2440 (± 75)	2 - 880
		6.4	1220 (± 50)	2440 (± 75)	2 - 880
		9.6	1220 (± 50)	2440 (± 75)	2 - 880
Aramid honeycomb 64 kg/m ³	hexagonal	3.2	1220 (± 50)	2440 (± 75)	2 - 880
		4.8	1220 (± 50)	2440 (± 75)	2 - 880
		6.4	1220 (± 50)	2440 (± 75)	2 - 880
Aramid honeycomb 80 kg/m ³	hexagonal	12.8	1220 (± 50)	2440 (± 75)	2 - 880
		3.2	1220 (± 50)	2440 (± 75)	2 - 880
		4.0	1220 (± 50)	2440 (± 75)	2 - 880
Aramid honeycomb 96 kg/m ³	hexagonal	4.8	1220 (± 50)	2440 (± 75)	2 - 880
		3.2	1220 (± 50)	2440 (± 75)	2 - 880
Aramid honeycomb 123 kg/m ³	hexagonal	4.8	1220 (± 50)	2440 (± 75)	2 - 880
Aramid honeycomb 128 kg/m ³	hexagonal	3.2	1220 (± 50)	2440 (± 75)	2 - 880

Aramid honeycomb hexagonal



Aramid honeycombs

Reference	Type	Cell size (mm)	Sheet dimensions (mm)		
			width	length	thickness
Aramid honeycomb 144 kg/m ³	hexagonal	3.2	1220 (± 50)	2440 (± 75)	2 - 880
		4.0	1220 (± 50)	2440 (± 75)	2 - 880
Aramid honeycomb 29 kg/m ³	rectangular	4.8	1220 (± 50)	2440 (± 75)	2 - 880
		4.8	1220 (± 50)	2440 (± 75)	2 - 880
Aramid honeycomb 48 kg/m ³	rectangular	6.4	1220 (± 50)	2440 (± 75)	2 - 880
		4.8	1220 (± 50)	2440 (± 75)	2 - 880
Aramid honeycomb 64 kg/m ³	rectangular	6.4	1220 (± 50)	2440 (± 75)	2 - 880
		4.8	1220 (± 50)	2440 (± 75)	2 - 880
Aramid honeycomb 72 kg/m ³	rectangular	4.8	1220 (± 50)	2440 (± 75)	2 - 880
Aramid honeycomb 80 kg/m ³	rectangular	4.8	1220 (± 50)	2440 (± 75)	2 - 880
Aramid honeycomb 96 kg/m ³	rectangular	4.8	1220 (± 50)	2440 (± 75)	2 - 880

Aluminum honeycomb

Reference	Type	Cell size (mm)	Sheet dimensions (mm)		
			width	length	thickness
Aluminium honeycomb 24 kg/m ³	hexagonal	6.4	1220 (± 50)	2440 (± 75)	2 - 880
		9.6	1220 (± 50)	2440 (± 75)	2 - 880
		19.2	1220 (± 50)	2440 (± 75)	2 - 880
Aluminium honeycomb 29 kg/m ³	hexagonal	4.0	1220 (± 50)	2440 (± 75)	2 - 880
		4.8	1220 (± 50)	2440 (± 75)	2 - 880
		6.4	1220 (± 50)	2440 (± 75)	2 - 880
Aluminium honeycomb 32 kg/m ³	hexagonal	9.6	1220 (± 50)	2440 (± 75)	2 - 880
		12.8	1220 (± 50)	2440 (± 75)	2 - 880
		19.2	1220 (± 50)	2440 (± 75)	2 - 880

Aramid honeycomb hexagonal



Aramid honeycomb rectangular

SANDWICH STRUCTURES

PARABEAM® - 3D glass fabrics

Reference	Areal weight (g/m ²)	Laminate weight (kg/m ²)	Standard width (cm)	Standard roll length (m)
Parabeam® PARATANK 3 mm	755	1,80	63,5 / 127,0	47,25
Parabeam® PARAGLASS 3,5 mm	780	1,64	127,0	39,40
Parabeam® PARATANK 4,5 mm	850	2,05	63,5 / 127,0	47,25
Parabeam® PARAGLASS 5,5 mm	860	0,54	127,0	39,40
Parabeam® PARATANK 6 mm	900	2,20	63,5 / 127,0	47,25
Parabeam® PARAGLASS 8 mm	930	1,95	127,0	39,40
Parabeam® PARAGLASS 10,5 mm	1430	3,01	127,0	39,40
Parabeam® PARAGLASS 12,5 mm	1500	3,15	127,0	39,40
Parabeam® PARAGLASS 15 mm	1600	3,36	127,0	39,40
Parabeam® PARAGLASS 18 mm	1720	3,61	127,0	39,40
Parabeam® PARAGLASS 22,5 mm	1680	3,53	127,0	39,40

SPHERETEX®

Reference	Areal weight (g/m ²)	Standard width (cm)	Standard roll length (m)
sphere.tex 1.5	115	125	100,0
sphere.tex 2.0	170	125	70,0
sphere.tex 3.0	300	125	50,0
sphere.tex SN 1.5	115	125	100,0
sphere.tex SN 2.0	170	125	70,0
sphere.tex SN 3.0	300	125	50,0

sphere.tex 2.0



Lantor Coremat®

Reference	Areal weight (g/m ²)	Thickness (mm)	Standard width (cm)	Standard roll length (m)
Lantor Coremat® Xi 1	35	1,4	100	130,0
Lantor Coremat® Xi 2	62	2,0	100	80,0
Lantor Coremat® Xi 3	88	3,0	100	50,0
Lantor Coremat® Xi 4	114	4,0	100	40,0
Lantor Coremat® Xi 5	125	5,0	100	30,0
Lantor Coremat® XM 2	96	2,0	100	80,0
Lantor Coremat® XM 3	128	3,0	100	50,0
Lantor Coremat® XM 4	163	4,0	100	40,0
Lantor Coremat® XM 10	335	10,0	100	15,0

Lantor Soric®

Reference	Areal weight (g/m ²)	Thickness (mm)	Standard width (cm)	Standard roll length (m)
Lantor Soric® SF 2	120	2,0	127	80,0
Lantor Soric® SF 3	160	3,0	127	50,0
Lantor Soric® XF 2	125	2,0	127	80,0
Lantor Soric® XF 3	175	3,0	127	50,0
Lantor Soric® XF 4	240	4,0	127	40,0
Lantor Soric® XF 5	310	5,0	127	30,0
Lantor Soric® XF 6	320	6,0	127	25,0
Lantor Soric® TF 1.5	90	1,5	127	100,0
Lantor Soric® TF 2	115	2,0	127	80,0
Lantor Soric® TF 3	170	3,0	127	50,0
Lantor Soric® LRC 1.5	TBD	1,5	127	70,0
Lantor Soric® LRC 2	135	2,0	127	60,0
Lantor Soric® LRC 3	200	3,0	127	40,0

Hi-tech laminating resins

Item	Characteristics / Application
Epoxy resin LG 120	low-viscosity standard laminating epoxy resin with excellent adhesion and very good heat resistance. Except hardener HG 353, heat postcuring is necessary.
Hardener HG 350, HG 351, HG 353	fast hardeners with short cure time even in thin layer and with lower exotherm. Mixing ratio 100 : 35, working time 10, 20 and 50 minutes.
<i>The industrial epoxy system for hand laminating.</i>	

Item	Characteristics / Application
Laminating resin LG 285	high quality epoxy resin designed for lamination without the need of heat postcuring. It has very good mechanical properties and sufficient elasticity even when heat postcuring is not applied. Designed for aviation industry.
Hardener HG 285, HG 286, HG 287	hardeners for epoxy resin LG 285, mixing ratio 100 : 40. Working time 45 minutes, 2 hours and 3 hours.
<i>Direct substitution of epoxy resin system L 285 by the former German company producer, which was used for aviation manufacturing. Certified comparative tests can be provided on request.</i>	

Item	Characteristics / Application
Epoxy resin EPIKOTE™ Resin MGS® LR 285	well-known epoxy resin.
Hardener EPIKURE™ Curing Agent MGS® LH 285, 286, 287	hardeners for EPIKOTE™ resin MGS® LR 285. Working time 45 minutes, 2 hours and 3 hours. Mixing ratio 100 : 40. Easily processable at room temperature.
Hardener EPIKURE™ Curing agent MGS® LH 133, 136, 137	range of hardeners for curing at room temperature. Mixing ratio 100 : 35.
Hardener EPIKURE™ Curing agent MGS® LH 500, LH 501	fast hardeners with short curing time even in thin layer. Mixing ratio 100 : 40, working time 25 and 50 minutes.

Item	Characteristics / Application
Epoxy resin LG 385	innovative epoxy resin L285 MGS. Thanks to new technology, this epoxy resin has higher temperature stability and advanced technical parameters. Heat postcuring is recommended for reaching maximum performance.
Hardener HG 385, HG 386, HG 387	hardeners for epoxy resin LG 385, processing possible from 18°C, mixing ratio 100 : 40. Meets sport aircraft standards after postcuring at temperatures of more than 56°C for 12 hours.
<i>The system is an industrial version of LG 285. Same mixing ratio, viscosity and gel time as for LG 285, heat postcuring is necessary.</i>	

Hi-tech laminating resins

Item	Characteristics / Application
Epoxy resin LG 735 G	epoxy resin for 700 series, innovative non-toxic substitute of former toxic system Araldite® LY 5052. In contrary with Araldite LY 5052, it reaches up to 14% strength of carbon composites. High heat resistance (>100°C).
Hardener HG 735	hardener for epoxy resin LG 735 G, mixing ratio 100 : 35.
<i>This system is a non-allergic substitute of well-known nanofiber epoxy system Araldite LY 5052. In combination with carbon fiber, the system enables to reach up to 14% in strength.</i>	

Item	Characteristics / Application
Epoxy resin LG 700	new generation epoxy resin. Laminating system for RIM, RTM, vacuum technology and hand laminating. Extremely low viscosity enables processing of very light laminates. High reactivity. Working time from 25 minutes to 3 hours. Very good heat resistance and high flexibility even when postcured at room temperature.
Hardener HG 700 F, HG 700 R, HG 700 M+, HG 700 M, HG 700	working time 25, 30, 40, 50 and 70 minutes, mixing ratio 100 : 30.
Hardener HG 737	hardener for 700 series epoxy resins, mixing ratio 100 : 30, working time 2,5 to 3 hours. High flexibility, heat postcuring not necessary.
<i>This is a system for both RTM and hand lamination. It has a very low viscosity while maintaining good heat resistance and very flexible high strength bonds.</i>	

Item	Characteristics / Application
Epoxy resin LG 900 UV	high strength hybrid epoxy resin with content of nanoparticles. Developed for production of strongest composites, especially carbon ones. Compared to common epoxy resin systems it shows by 30% higher mechanical pressure parameters.
Hardener HG 100	Hi-tech laminating hardener with long working time (approx. 3 hours). One of the best hardeners with excellent mechanical parameters after curing on the market. Heat postcuring is necessary.
Hardener HG 120	mixing ratio 100 : 25, heat resistance after postcuring at 90°C is 120°C. Heat postcuring is necessary.
<i>The best epoxy-amine hybrid system for production of composites. Long pot-life for comfortable production of also large parts. High UV and weather conditions resistance, especially with hardener HG 120. HTD higher than 90°C.</i>	

Item	Characteristics / Application
Epoxy resin LG 206	low-viscosity standard laminating epoxy resin with excellent mechanical parameters, designed for lamination without the need of heat postcuring.
Hardener HG 358	very slow hardener with long working time (approx. 4 - 5 hours). Mixing ratio 100 : 34.
Hardener HG 359	hi-tech laminating hardener that has got very long working time (over 6 hours) and reaches the basic strength even at room temperature (within 24 hours).
<i>The epoxy-amine hybrid system for production of composites. Very long pot-life for comfortable production of also large parts. It can be used for production of both extremely large and also very precise parts, especially with hardener HG 359. Tg of the system is 85°C.</i>	

Hi-tech laminating resins

Item	Characteristics / Application
Epoxy resin LG 120	low-viscosity standard laminating epoxy resin with excellent adhesion and very good heat resistance.
Hardener HG 100	Hi-tech laminating hardener with long working time (approx. 3 hours). One of the best hardeners with excellent mechanical parameters after curing on the market. Heat postcuring is necessary.
Hardener HG 120	mixing ratio 100 : 25, heat resistance after postcuring at 90°C is 120°C. Heat postcuring is necessary.
<i>Hi-tech system with very high T_g. It can be used for winding of carbon fiber filament roving (e.g. Masts, spindles and wind turbine blade connections).</i>	

Item	Characteristics / Application
Epoxy resin LG 115	the most commonly used standard laminating epoxy resin. Suitable for both laminating and mould processing. Heat postcuring is recommended.
Epoxy resin LG 730	new generation, very runny, liquid type epoxy resin. Very good strength even at room temperature without the risk of stiffness. High reactivity and heat resistance.
Epoxy resin LG 815	tough laminating epoxy resin for processing of abrasion and crush resistant components. Suitable for laminating of wild-water kayaks.
Hardener HG 25, HG 25 M	hardeners with favourable working time 25 minutes and 35 - 40 minutes. Mixing ratio 100 : 25, postcuring at minimum 50°C is necessary.
Hardener HG 28	two-hour hardener for epoxy resin LG 730, suitable for mechanically stressed components (e.g. airscrew spinners). Mixing ratio 100 : 30.

Laminating epoxy systems for production of moulds

Item	Characteristics / Application
Epoxy resin LG 112	epoxy resin of very good strength, shape stability and very good temperature stability (up to 140°C). Used for processing of high quality moulds. Heat postcuring is necessary.
Hardener HG 2	hardener suitable especially for epoxy resin LG 112. Very good strength and shape stability at high temperatures (approx. 120°C). Mixing ratio 100 : 30. Heat postcuring is necessary for reaching declared parameters.
Hardener HG 40 F, HG 40 M and HG 40	range of hardeners for mould epoxy resins. Mixing ratio 100 : 40, working time 25 minutes, 40 minutes and 1 hour. Heat postcuring for reaching maximum performance.
Hardener HG 120	mixing ratio 100 : 25, heat resistance with epoxy resin LG 112 up to 150°C. Heat postcuring is necessary.
<i>This is a system especially designed for mould production. It has very high shape stability, solidity and heat resistance.</i>	

Laminating epoxy-anhydride systems

Item	Characteristics / Application
Epoxy resin LG 150	flexible variety of epoxy resin for anhydride systems with Tg up to 100°C. Suitable for prepregs and filament winding.
Hardener VE 95	anhydride hardener for epoxy resins. Curing from 80°C.
Hardener VE 95-2	anhydride hardener for epoxy resins. Curing from 80°C. Variety with accelerator.
Hardener VE 112	anhydride hardener for epoxy resins. Designed for epoxy resin LG 150 for winding of high pressure carbon vessels.
Hardener VE 112-2	anhydride hardener for epoxy resins. Designed for epoxy resin LG 150 for winding of high pressure carbon vessels. Variety with accelerator.
Accelerator SG 2	standard accelerator for anhydride epoxy systems.
<i>This is a very quick anhydride system that enables post cure at lower temperatures (85°C). It is suitable for winding of pressure vessels.</i>	

Item	Characteristics / Application
Laminating epoxy resin LG 100	component of slow anhydride system with high Tg (> 120°). Suitable for prepregs and filament winding.
Hardener VE 100	non-accelerated hardener for anhydride system LG 100 + VE 100.
Hardener VE 100-2	hardener for anhydride system LG 100 + hardener VE 100, with 2% of accelerator SG 2 for other than three-component dosing and blending systems.
Accelerator SG 2	standard accelerator for anhydride epoxy systems.
<i>This system is a very slow anhydride system for prepreg manufacturing and winding. The manufacturing equipment can be cleaned even after several days. The system has high Tg. Post cure at higher temperature is needed.</i>	

Foaming and casting epoxy systems

Item	Characteristics / Application
Epoxy resin LG 100	foaming epoxy system with high toughness and adhesion. Heat resistance after postcuring exceeds 80°C.
Hardener HG 30	hardener for epoxy foam system. Mixing ratio 100 : 30 (hard brittle foam) to 100 : 40 (tough foam).
Blowing agent FC 3	blowing agent. Dosage according to required foam density 1 - 5%. At 3% cca. 5 times foaming.
<i>This is a flexible foam system with very high strength. It creates even thick non-fragile foam with density of 120 - 300 kg/m³</i>	

Foaming and casting epoxy systems

Item	Characteristics / Application
Epoxy resin SLIP LG 100	highly transparent epoxy resin enabling thick multiple layer casting. Suitable especially for special applications such as promotion gifts, glass and ice imitations. Skin sensitive.
Hardener S - HG 130	mixing ratio 100 : 30. Very slow hardener almost free of exotherm, very good parameters even at room temperature.
Hardener S - HG 140	mixing ratio 100 : 40. Approximately by 40% faster than hardener S-HG 130. Contains compounds that gives bright shine even to surfaces stuck to the mould. Slightly higher exotherm than hardener S-HG 130.

Epoxy gelcoats

Item	Characteristics / Application
Epoxy resin LG C1	transparent, chemically resistant epoxy gelcoat. Used for coating of epoxy-laminated fuel tanks or for other transparent protection layers.
Hardener HG C1	hardener for epoxy gelcoat LG C1. Mixing ratio 100 : 50, working time approx. 50 minutes.
<i>This is a chemical resistant epoxy gelcoat. It is resistant to all dissolving agents including petrol after it has been tempered. It can be used as topcoat.</i>	

Item	Characteristics / Application
Epoxy gelcoat FG 110	NOVOLAC based epoxy gelcoat, beige colour.
Hardener FT 110	hardener for epoxy gelcoat FG 110, mixing ratio 100 : 10.
Hardener FT 113	hardener for epoxy gelcoat FG 110, mixing ratio 100 : 13.
<i>This is a nanofiber mould gelcoat of a very high hardness (95 Shore D) that enables intensive sanding and polishing. It is not fragile.</i>	

Item	Characteristics / Application
Epoxy gelcoat G 70 UV	extremely UV stable epoxy gelcoat, transparent.
Hardener GT 70	slow hardener for gelcoat G 70 UV, mixing ratio 100 : 25.
Hardener HG 700 R	superb water clear variation, hardener for gelcoat G 70 UV, working time approx. 1 hour, mixing ratio 100 : 25.
Hardener HG 133	the most commonly used fast hardener for gelcoat G 70 UV, working time approx. 20 minutes, mixing ratio 100 : 30.
<i>This is UV stable epoxy gelcoat which is resistant to all weather conditions, UV rays and chemicals.</i>	

Epoxy gelcoats

Item	Characteristics / Application
Epoxy gelcoat RenGel® SW 56	time proven gelcoat for moulds. Very good grinding and polishing properties.
Epoxy gelcoat RenGel® SW 18	green epoxy gelcoat for moulds with very good polishing properties and heat resistance.
Epoxy gelcoat RenGel® SW 404	highly resistant epoxy gelcoat for edges and also whole moulds. Polishing is not possible.
Hardener Ren® HY 5159	hardener for epoxy gelcoats RenGel® with very good heat resistance. Heat postcuring is necessary.
Hardener Ren® HY 2404	hardener for epoxy gelcoats RenGel® used for cases where postcuring by heat is not possible.

Epoxy adhesives

Item	Characteristics / Application
Epoxy glue FIX BOND 57 - compound A	special high bond glue with very high peeling strength and bond flexibility. Glued bonds to metal have higher strength than welded joints. Hard, stable bonds from -60°C to 100°C.
Epoxy glue FIX BOND 57 - compound B	hardener for epoxy glue FIX BOND 57 A, mixing ratio 100 : 140
Epoxy glue FIX BOND 57 TIX - compound A	black, completely tixotropic variety of structural adhesive FIX BOND 57.
Epoxy glue FIX BOND 57 TIX - compound B	hardener for epoxy glue FIX BOND 57 TIX A, mixing ratio 100 : 130.
Epoxy glue FIX BOND 150 - compound A	flexible glue suitable especially for sticking of wooden cores with glass or fiberglass under pressure and heat (skateboards, snowboards, skis, etc.)
Epoxy glue FIX BOND 150 - compound B	hardener for epoxy glue FIX BOND 150 A. Working time approx. 35 minutes. Commonly used under pressure and high temperature 90 - 120°C for several minutes.
5 minute epoxy glue - compound A	very quick epoxy glue suitable for all applications with very short gel time or where tempering is not possible. It is suitable for fixing of individual elements together.
5 minute epoxy glue - compound B	hardener for 5 minute Epoxy glue A, mixing ratio 100 : 100.
Epoxy glue FLEX 40 - compound A	all-purpose glue for metal components, cured laminates and wood. High viscosity, working time approx. 50 minutes. Postcuring at minimum 70°C is recommended.
Epoxy glue FLEX 40 - compound B	hardener for epoxy glue FLEX 40 A, mixing ratio 100 : 40.

POLYESTER AND VINYLESTER

Polyester resins for laminating and moulds production

Item	Characteristics / Application
Polyester resin H-834 REA 30	medium reactive, thixotropic, pre-promoted resin designed for use in manufacturing of boats and other composite parts using hand lay-up or spray-up applications method. Processability of 30 minutes.
Polyester resin RM 2000	unsaturated polyester resin made especially for mould production. Suitable for production of more complicated moulds and also for those of difficult shapes. Processability of 40 - 45 minutes.
Polyester resin RM 2000 LGT	unsaturated polyester resin made especially for mould production. Suitable for production of more complicated moulds and also for those of difficult shapes. Processability of 60 - 70 minutes.
Peroxide CATA 2000	peroxide for resins RM 2000, mixing ratio 100 : 1 - 1,5
Peroxide K1	peroxide for curing of polyester resins, mixing ratio 100 : 1 - 3
Peroxide Butanox M 50	peroxide for curing of polyester resins, mixing ratio 100 : 1,5

Polyester gelcoats, hardeners and thinners

Item	Characteristics / Application
Polyester gelcoat EC G30	transparent polyester gelcoat compatible with epoxy laminates
Polyester gelcoat EC G35	white polyester gelcoat compatible with epoxy laminates
Polyester gelcoat EPIKOTE™ Resin MGS GR T30F	transparent polyester gelcoat compatible with epoxy laminates
Polyester gelcoat EPIKOTE™ Resin MGS GR T35	white polyester gelcoat compatible with epoxy laminates
Polyester gelcoat EPIKOTE™ Resin MGS GR T35SH	white polyester gelcoat compatible with epoxy laminates, variety for spraying ultralight airplanes and gliders.
Hardener EPIKURE™ Curing Agent MGS GH SF2	hardener for polyester gelcoats MGS®, mixing ratio 100 : 1,5 - 2
Hardener EPIKURE™ Curing Agent MGS GH SF10	hardener for polyester gelcoats MGS®, mixing ratio 100 : 10
Thinner HELOXY™ Additive MGS V VSF	thinner for unsaturated polyester resins and gelcoats MGS®. Contrary to acetone, it is more gentle to the cleaned material.
Polyester gelcoat Polygel 3232	highly transparent polyester acrylate topcoat with high UV stability grade. UV cureable.
UV initiator	hardener for polyester resin Polygel 3232, curing initiated by UV lamp or sunlight. Curing time 2 - 15 minutes.
Thinner for Polygel 3232	reactive thinner for Polygel 3232, fully UV cureable. It is embedded into the structure and improves strength of coating.

Vinylester laminating resins

Item	Characteristics / Application
Vinylester resin 680 TPA	vinylester thixotropic accelerated resin for production of chemical resistant products, suitable for hand laminating, spraying and RTM application.

AUXILIARY MATERIALS, ACCESSORIES AND TOOLS

Release agents, fillers and pigment pastes

Item	Characteristics / Application
Release agent PVA All-purpose, transparent	barrier release agent based on polyvinylalcohol. Can be applied both by brushing and spraying. It creates perfectly adhesive and glossy surfaces.
Release agent PVA All-purpose, coloured	coloured variation of PVA release agent that enables optical control over compactness of PVA film after its application on the mould.
Release agent PVA MAX	barrier release agent based on polyvinylalcohol with increased release effect. 100 % guarantee of release.
TR 905 - Mould cleaner	cleaning agent for mould surfaces. It eliminates surface defects and release agent residues.
TR 910 - Liquid Semi-permanent sealer	liquid sealer for mould surface preparation. The sealer needs to be used for new moulds, older moulds with micro-porosity and other minor surface defects. It is used prior to application of release agents TR-900 series.
TR 930 - Semi-permanent release agent	reliable all-purpose release agent, gets dry quickly at room temperatures, for quick application.
Trennmittel WX-3070 - spray (400 ml)	release agent in spray based on wax, reliable for technical release.
Trennmittel WX-3070 - concentrate	variety of release agent based on wax without spray.
Trennspray W-27 (400 ml)	release agent in spray based on wax, reliable for technical release.
Mould Release Paste Wax Oskar's M-700/C	solid emulsion of pure carnaube wax and carbon dissolving agents, it creates very hard, resistant and glossy layer. Does not contain silicones. Does not create optical "eyes" when gelcoat is applied with a spray.
Buffing- and Polishing Compound Oskar's M-50	efficient polishing and brushing paste for gloss restoration of dull moulds or for polishing of new moulds. Does not contain wax or silicon.
Buffing- and Polishing Compound Oskar's M-100	standard polishing paste for polishing polyester or epoxy laminate surfaces.
Super finish Polishing Compound Oskar's M-150	standard polishing paste for polishing polyester or epoxy laminate surfaces.
Maximum Mold Release Wax Meguiar's M-8	release wax enabling maximum number of releases for one application. Suitable mainly for new moulds and tools. The best option to ensure maximum release properties.
Professional Paste Wax Meguiar's M-16	traditional wax paste providing excellent protection mainly at extreme conditions, quick-dry variety of original formula, does not get white during drying, suitable for all surfaces.

AUXILIARY MATERIALS, ACCESSORIES AND TOOLS

Release agents, fillers and pigment pastes

Item	Characteristics / Application
High Temp Mold Release Wax Meguiar's M-87	release wax destined for high temperatures, its composition enables reaching maximum results during production of moulds at high temperatures.
Universal Mold Release Wax Meguiar's M-88	extremely resistant release wax creating highly glossy surface destined for all-purpose applications, mainly for new and tempered moulds.
TR 104 High Temperature Wax	ideal for temperatures of up to 120°C, a high production paste release with excellent breakdown for fast even coverage. Formulated for fast drying with pure carnauba base. Extremely easy to apply and wipe.
Release wax W-27	release agent to be used for all-purpose applications, matt surface.
RenLease® QV 5110	cloth applied way based release agent for general applications. Polishable to lustre.
RenLease® QZ 5111	a liquid suspension of waxes in solvent for the release of general and intricate mould surfaces. Polishable to lustre.
Priming wax	highly efficient priming wax for base surfaces with low wetting properties, silicone-free, resistant up to ca. 100°C.
Partall® Hi-Temp Wax	high-temperature release wax for high-gloss surfaces, silicone-free. Ideal for smooth, tight surfaces.
Partall® paste #2	release wax for epox, polyester and vinylester resins, silicone-free, useable up to 60°C. For high-gloss surfaces.
Microspheres Q-CELL 7014/7019	suitable for thickening of all epoxy resins. Microbaloons are small, hollow, glass spheres that thicken the epoxy resin and reduce the weight of the system.
Microspheres BJO-0930 phenolic	self-extinguishing variety of microbaloons made of phenolic resin. Ideal for mixing with epoxy matrix. Designed for aviation industry.
Microspheres Expancel 461 DET 40 d25	dry, expanded microspheres. Used as a light wight filler of epoxy resins and polyester putties. Offers high resiliency and easy compression.
AEROSIL® 200	thixotropic agent. Hydrophilic silica suitable for building up all epoxy resins. Used for vertical applications to prevent drain-out. Even small amount of the powder results in thixotropic properties.
HL® 200	thixotropic agent. Hydrophilic silica suitable for building up all epoxy resins. Used for vertical applications to prevent drain-out. Even small amount of the powder results in thixotropic properties. Economic option to AEROSIL® 200.
Cotton flocks	milled cotton fiber used for thickening of epoxy resins that have to keep very good construction strength.
Chopped glass strand	loose binding agent for thickening of resins or putty. Available as 0,2 mm, 3 mm, 4 mm and 6 mm long strands.
Chopped carbon strand	filler suitable for ensuring conduction of electrical static charge away, improves mechanical parameters of laminate. Available as 0,2 mm, 1 mm, 3 mm and 6 mm long strands.

Release agents, fillers and pigment pastes

Item	Characteristics / Application
Microcellulose powder	suitable for thickening of all resins. It is used for applications where resin needs to be held in vertical position and prevented from flowing down.
Aluminium granulate, particle size 200 µm	filler suitable for increasing of heat conduction of moulds. Available as granules (particles of size under 200 µm) or pellets (fraction of 0,5 - 1,6 mm, 0,2 - 0,5 mm).
Universal pigment pastes	colour shades according to RAL colour scale, all-purpose pastes suitable both for epoxy and polyester resins.

Shears and cutters

Item	Characteristics / Application
Scissors ROBUSO 405/C/6"	straight scissors with micro-serration and polyurethane coated handles, suitable for cutting technical textiles. Total length 16 cm.
Scissors ROBUSO 405/2/C/6"	scissors with bent-up blades and micro-serration, polyurethane coated handles, suitable for cutting technical textiles. Total length 16 cm.
Scissors ROBUSO 405/2/B-CR/6"	steel mould-making scissors with bent-up blades and micro-serration. Total length 16 cm.
Scissors ROBUSO 1020/HQ/C/7	straight steel shears, handles with black lacquer finish. Total length 18,5 cm.
Scissors ROBUSO 1020/HQ/C/8"	straight steel shears, handles with black lacquer finish. Total length 21 cm.
Scissors ROBUSO 1020/HQ/C/9"	straight steel shears, handles with black lacquer finish. Total length 23,5 cm.
Scissors ROBUSO 1020/HQ/C/10"	straight steel shears, handles with black lacquer finish. Total length 26 cm.
Scissors ROBUSO 1020/HQ/C/11"	straight steel shears, handles with black lacquer finish. Total length 29 cm.



Cotton flocks



Aluminium granulate

AUXILIARY MATERIALS, ACCESSORIES AND TOOLS

Shears and cutters

Item	Characteristics / Application
Scissors ROBUSO 1024/C/10"	straight steel shears with micro-serration and polyurethane coated handles, suitable for cutting technical textiles. Total length 26 cm.
Scissors ROBUSO 1026/C/8"	straight steel shears with micro-serration and polyurethane coated handles, suitable for cutting technical textiles. Total length 21 cm.
Scissors ROBUSO 1026/B-CR/9,5"	completely chrome-plated narrow shears, with micro-serration, suitable for laminate fabrics. Total length 25 cm.
Scissors ROBUSO 1026/2/B-CR/8"	completely chrome-plated shears with bent-up blades and micro-serration, suitable for laminate fabrics. Total length 21 cm.
Scissors ROBUSO 1040/C/10"	narrow shears for left-handers, handles with polyurethane coating. Total length 26 cm.
Scissors ROBUSO 540426-10"	narrow shears for left-handers, handles with black lacquer finish. Available also with micro-serration. Total length 26 cm.
Scissors ROBUSO 1053/CR/10"	straight chrome plated shears with comfort handles, extreme easy for handling and control, suitable for cutting technical textiles. Total length 26 cm.
Scissors ROBUSO 1071/C/7,75"	straight shears with short lades and long handles for short-length cuts, with micro-serration, suitable for technical textiles. Total length 20 cm.
Scissors ROBUSO 1249/4/E/6"	mould-making scissors with bent-up blades and offset handles, completely nickel-plated. One blade micro-serrated. Total length 16 cm.

ROBUSO scissors mould making series



ROBUSO scissors with polyethylene handles

Shears and cutters

Item	Characteristics / Application
Scissors ROBUSO 1253/4/B-CR/7"	mould-making scissors with bent-up blades and offset handles, one blade micro-serrated. Suitable for laminate fabrics. Total length 18,5 cm.
Scissors ROBUSO 2010/R/8"	light shears with stainless blades and unbreakable black plastic handles. Total length 21 cm.
Scissors TECX 2042/R/10"	high quality shears with large unbreakable plastic handles. Suitable also for left-handers. Total length 26 cm.
Rotary cutter KAI Ø 28 mm	small rotary cutter
Replacement blades for rotary cutter Ø 28 mm	replacement rotary blade, 2 blades per package
Rotary cutter OLFA Ø 45 mm	medium rotary cutter
Replacement blades for rotary cutter Ø 45 mm	replacement rotary blade, 1 blade per package
Rotary cutter OLFA Ø 60 mm	large rotary cutter
Replacement blades for rotary cutter Ø 60 mm	replacement rotary blade, 1 blade per package
EC Cutter Set - serrated	electric shears designed for cutting of Kevlar®, Twaron®, Dyneema®, glass and carbon fiber materials. Mains- and battery+powered operation for unstricted choice of working environment.
Replacement cutter head for EC-Cutter	replacement cutter head, unserrated
Replacement cutter head for EC-Cutter - with micro-serration	replacement cutter head, serrated
Heavy duty cutter OLFA with rubber grip, small	heavy duty cutter with rubber grip and automatic blade lock
Heavy duty cutter OLFA with rubber grip, large	heavy duty cutter with rubber grip, automatic blade lock and built-in hard metal pick for multipurpose applications.

Heavy duty cutter OLFA with rubber grip, small



Heavy duty cutter OLFA with rubber grip, large

AUXILIARY MATERIALS, ACCESSORIES AND TOOLS

Vacuum bagging films, perforated release films and sealant tapes

Item	Characteristics / Application
Bagging film FLM120	a light green, vacuum bagging film. Maximum use temperature 120°C, thickness 0,075 mm, elongation 330%.
Bagging film TBL170	a pink, vacuum bagging film (tube). Maximum use temperature 170°C, thickness 0,050 mm / 0,075 mm, elongation 410%.
Bagging film TBL200	a green, vacuum bagging film (tube). Maximum use temperature 195°C, thickness 0,050 mm, elongation 330%.
Bagging film PO120	a green, vacuum bagging film. Maximum use temperature 120°C, thickness 0,075 mm / 0,08 mm, elongation 400%.
Bagging film PO180	a pink, vacuum bagging film. Maximum use temperature 180°C, thickness from 0,05 to 0,075 mm, elongation 360%.
Bagging film PO180 TUBE	a pink, vacuum bagging film (tube). Maximum use temperature 180°C, thickness from 0,05 to 0,075 mm, elongation 360%.
Bagging film PO150 XD2	a transparent, extremely flexible vacuum bagging film. Maximum use temperature 145°C, thickness 0,08 mm, elongation 1000%.
Bagging film PA205	a transparent, vacuum bagging film. Maximum use temperature 205°C, thickness 0,05 / 0,075 mm.
Release film FLD 120 HD	release film, blue colour, perforation P3/P31/N. Maximum use temperature 120°C, thickness 0,025 mm, elongation 200%.
Release film FLD 150 HD	release film, yellow colour, perforation P3/P31/N. Maximum use temperature 153°C, thickness 0,030 mm, elongation 400%.
Release film FLD 170 HD	release film, green colour, perforation P3/P31/N. Maximum use temperature 168°C, thickness 0,030 mm, elongation 400%.
Release film HT 500	release film, red colour. Maximum use temperature 200°C, thickness 0,013 or 0,025 mm, elongation 150%.
Perforated release film ELA20	perforated release film, blue colour, perforation P1/P3/N. Maximum use temperature 125°C, thickness 0,025 mm, elongation 300%.
Perforated release film PP40	polypropylene perforated release film, red colour, perforation P1/P3/N. Maximum use temperature 160°C, thickness 0,04 mm, elongation 700%.
Perforated release film ETFE230	perforated release film, blue colour, perforation P1/P3/N. Maximum use temperature 230°C, thickness 0,013 / 0,02 mm, elongation 300%.
Perforated release film PMP200	perforated release film, purple colour, perforation P1/P3/N. Maximum use temperature 200°C, thickness 0,03 mm, elongation 330%.
Sealant tape LSM6000 - 3 x 13 mm	low temperature sealant tape for temperatures up to 90°C, brown colour, roll length 13 m.
Sealant tape LSM1310 - 2,5 x 12 mm	medium temperature, hyper tack sealant tape for temperatures up to 110°C, black colour, roll length 15 m.
Sealant tape LSM5200 - 2,5 x 12 mm	medium temperature, hyper tack sealant tape for temperatures up to 140°C, black colour, roll length 15 m. Economic option.
Sealant tape AN-3 12 x 2 mm (or 6 x 2 mm)	universal sealant tape for temperatures up to 150°C, grey colour, roll length 21 m.
Sealant tape AN-3 HT 10 x 3 mm (or 6 x 2 mm)	high-temperature sealant tape for temperatures up to 210°C, yellow colour, roll length 14 m.

P1 = perforated P1 (punched holes, Ø 1,0 mm), P3 = perforated P3 (hot perforation, Ø 0,38 mm), P31 = perforated P31 (hot perforation, Ø 0,6 mm), N = non-perforated



Vacuum bagging films, perforated release films and sealant tapes

Item	Characteristics / Application
Sealant tape LSM7000 - 3 x 12 mm	high temperature sealant tape for temperatures up to 210°C, yellow colour, roll length 12,5 m.
Sealant tape LSM3000 FLEX - 50 x 1,5 mm (FOR DIADRAIN MP APPLICATION)	low temperature sealant tape for temperatures up to 90°C, black colour, roll length 25 m.
Vacuum bag sealant (putty)	rubber for vacuum bagging, used in the construction of sealings

P1 = perforated P1 (large), P3 = perforated P3 (small), N = non-perforated

Carbon rods and tubes

Item	Length
Carbon rods Ø 2 mm	1250 mm
Carbon rods Ø 5 mm	2000 mm
Carbon rods Ø 6 mm	2000 mm
Carbon rods Ø 13 mm	1960 mm
Carbon rods Ø 14 mm	2000 mm
Carbon tubes 3,0 x 1,9 mm	1250 mm
Carbon tubes 4,0 x 2,5 mm	1250 mm
Carbon tubes 5,0 x 3,0 mm	2000 mm
Carbon tubes 5,0 x 3,5 mm	2000 mm
Carbon tubes 6,0 x 4,0 mm	2000 mm
Carbon tubes 8,0 x 6,0 mm	2000 mm

Manipulation and handling

Item	Characteristics / Application
Plastic barrel cock 3/4"	small polyethylene drain barrel cock
Plastic barrel cock 2"	large polyethylene drain barrel cock
Catalyst dispenser CD 15	calibration 15 ml, reservoir 500 ml. Liquid dispenser moulded from a durable, high grade flexible polypropylene. Ideal for use with difficult fluids where cleaning would be unacceptable. Cost effectively disposable due to the inexpensive construction.
Catalyst dispenser CD 80	calibration 80 ml, reservoir 1000 ml. Liquid dispenser moulded from a durable, high grade flexible polypropylene. Ideal for use with difficult fluids where cleaning would be unacceptable. Cost effectively disposable due to the inexpensive construction.
Hand truck for drum transportation	truck with support wheel for transportation and manipulation with drums. When lying in vertical position the drum can rotate and its contents can be emptied. Maximum load 300 kg
Sack truck for drum transportation	sack truck with support wheel for transportation of empty or filled drums. Maximum load 250 kg.

AUXILIARY MATERIALS, ACCESSORIES AND TOOLS

Infusion and vacuum moulding accessories & tubes

Item	Characteristics / Application
Transparent PE-LD hose 10 x 12,5 mm	LD polyethylene pipe for vacuum and resin flow, roll length 50 m.
ECO SILICONE HOSE 10 x 18 mm	reinforced silicone pipe, for temperatures up to 220°C, roll length 25 m.
PE-HD SPIRAL TUBING Ø 12 mm	HD polyethylene spiral tubing for resin flow under vacuum bag, roll length 50 m.
PE-HD SPIRAL TUBING Ø 20 mm	HD polyethylene spiral tubing for resin flow under vacuum bag, roll length 20 m.
Reinforced PVC pipe 12 x 19 mm	reinforced PVC pipe can be used both with resin and vacuum, for temperatures up to 80°C, roll length 100 m.
Flexible ramp DIADRAIN	flat resin distribution/vacuum channel, width 50 mm / 100 mm, roll length 100 m.
Flexible ramp DIADRAIN MP	flat resin distribution/vacuum channel with microporous film, width 50 mm, roll length 50 m.
Infusion valve for DIADRAIN MP	linking up with 10 x 12 mm pipe
SPIRALNET-OM70 12/14	spiral tubing 12 x 14 mm with OM70 resin channel for resin flow
Vacuum bag insert for infusion 12 mm	vacuum bag insert for spiral tubing 12 x 12 mm or SPIRALNET, for temperatures up to 90°C.
Connector L 10 mm	L-connector for pipes inside diameter 10 mm, for temperatures up to 90°C.
Connector I 10 mm	I-connector for pipes inside diameter 10 mm, for temperatures up to 90°C.
Connector T 10 mm	T-connector for pipes inside diameter 10 mm, for temperatures up to 90°C.
PA Connector T 10 mm	nylon T-connector for pipes inside diameter 10 mm, for temperatures up to 200°C.
Vacuum valve ACIV10PP	economic and useful valve with connectors, avoids the clamps, airtight with vacuum and resins, for pipes inside diameter 10 mm and temperatures up to 90°C.
Vacuum valve ACPRISE-VIDEUTO 1/4" M	automatic self cutting vacuum valve 1/4" M, for temperatures up to 210°C.
Vacuum plug ACPRISE-VIDE 1/4" M	vacuum plug 1/4" Male with direct linking up with 10 x 12 mm pipe.
Quick release coupling 1/4" - socket	quick coupling, socket
Quick release coupling 1/4" - plug	quick coupling, plug
AEROVAC Non Return Plug 1/4" BSP	quick coupling, plug
AEROVAC Non Return Socket 1/4" BSP	quick coupling, socket
INFUTAC AEROSOL 500 ml	infusion adhesive specially designed to hold reinforcing fibers in place, suitable for infusion, vacuum moulding or RTM. Available at clear or green colour.

Infusion and vacuum moulding accessories & tubes

Item	Characteristics / Application
Adhesive spray 3T 410 ml	infusion adhesive specially designed to hold reinforcing fibers in place, suitable for infusion, vacuum moulding or RTM. Transparent.
Adhesive glass screen tape 50 mm	adhesive glass screen made to set fibers, bagging materials and the core materials during vacuum infusion process or vacuum moulding process. With 50 mm, thickness 400 µ, roll length 50 m.
Holding tank resin CO-XE-0500	multichannel catchpot, 3 inlets resin 12 mm, output gap 10 mm, for pipe 10/12 and temperatures up to 80°C.
Vacuometer 1/4" Male	vacuometer 1/4" M with glycerin, max. service temperature 60°C.
Vacuum pump PS 2V	oil-free vacuum pump, 47 - 55 l/min, -900 Mbar, 200W, 57 - 58 dB (A), 1465 - 1755 rpm, weight 7 kg.
Ultrasonic leak detector DETECT 05	hand leak detector incl. ultrasonic microphone, particularly adapter to the control of the flexible airtightness during the vacuum process.
Flash tape K0107	high temperature yellow tape for joining, masking or protection, max. temperature 180°C, width 25 mm, roll length 66 m.
Flash tape K7666	standard use blue tape for joining, masking or protection, max. temperature 180°C, width 13 mm / 25 mm / 50 mm, roll length 66 m.
Flash tape HT	standard use green tape for joining, masking or protection, max. temperature 180°C, width 25 mm, roll length 66 m.
Flash tape PTFE-2	high deformability grey tape for joining, masking or protection, max. temperature 260°C, width 25 mm / 4 mm / 51 mm, roll length 33 m.
Flash tape K7338	high temperature orange tape for joining, masking or protection, max. temperature 300°C, width 25 mm, roll length 33 m.
Flash tape K6337	high temperature orange tape for joining, masking or protection, max. temperature 300°C, width 25 mm / 50 mm / 100 mm, roll length 33 m.
Non-woven fabric ACR65	overlay non-woven fabric, 65 g/m ² , for temperatures up to 200°C, roll length 100 m.
Thermoshrinkable fabric DIATEX 1500	thermoshrinkable fabric for compact and hot drying of the laminate, 85 g/m ² , PES, max. temperature 200°C, roll length 100 m.

PE-LD = low-density polyethylene, PE-HD = high-density polyethylene



Quick release couplings

AUXILIARY MATERIALS, ACCESSORIES AND TOOLS

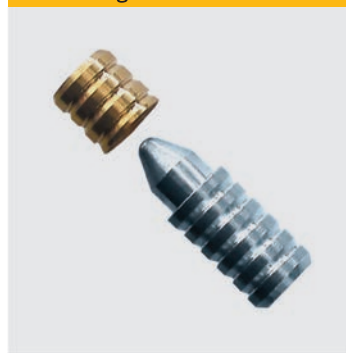
Tooling

Item	Characteristics / Application
Insert 12 x 12 mm	nut for sealing split moulds, inner diameter 6,1 mm.
M6 union 12 x 12 mm	bush for sealing split moulds.
M6 Allen screw 6 x 30 mm	screw for sealing split moulds, screw length 30 mm.
Alignment dowels, Ø 8 mm	two-parts grooved dowels consist of brass bush and brass pin. Used for making GRP moulds.
Demoulding wedge 65 x 33 x 11 mm	demoulding wedge for demoulding components carefully and free of damage. Plastic, white colour.
Modelling brush 1" (25,4 mm)	extra short bristles, suitable for applying overlays and laminating resins.
Modelling brush 2" (50,8 mm)	extra short bristles, suitable for applying overlays and laminating resins.
Modelling brush 2,5" (63,4 mm)	extra short bristles, suitable for applying overlays and laminating resins.
Wax sheets 0.5 mm	calibrated wax sheets for use in mould construction, thickness 0,5 mm, surface area 0,18 m ² (dimensions 305 x 610 mm).
Wax sheets 1.0 mm	calibrated wax sheets for use in mould construction, thickness 1 mm, surface area 0,18 m ² (dimensions 305 x 610 mm).
Wax sheets 1.5 mm	calibrated wax sheets for use in mould construction, thickness 1,5 mm, surface area 0,18 m ² (dimensions 305 x 610 mm).
Wax sheets 2.0 mm	calibrated wax sheets for use in mould construction, thickness 2 mm, surface area 0,18 m ² (dimensions 305 x 610 mm).
Wax sheets 2.5 mm	calibrated wax sheets for use in mould construction, thickness 2,5 mm, surface area 0,18 m ² (dimensions 305 x 610 mm).
Wax sheets 3.0 mm	calibrated wax sheets for use in mould construction, thickness 3 mm, surface area 0,18 m ² (dimensions 305 x 610 mm).
Wax sheets 4.0 mm	calibrated wax sheets for use in mould construction, thickness 4 mm, surface area 0,18 m ² (dimensions 305 x 610 mm).
Wax sheets 5.0 mm	calibrated wax sheets for use in mould construction, thickness 5 mm, surface area 0,18 m ² (dimensions 305 x 610 mm).

Insert 12 x 12 mm



Alignment dowels



M6 Allen screw



Demoulding wedge



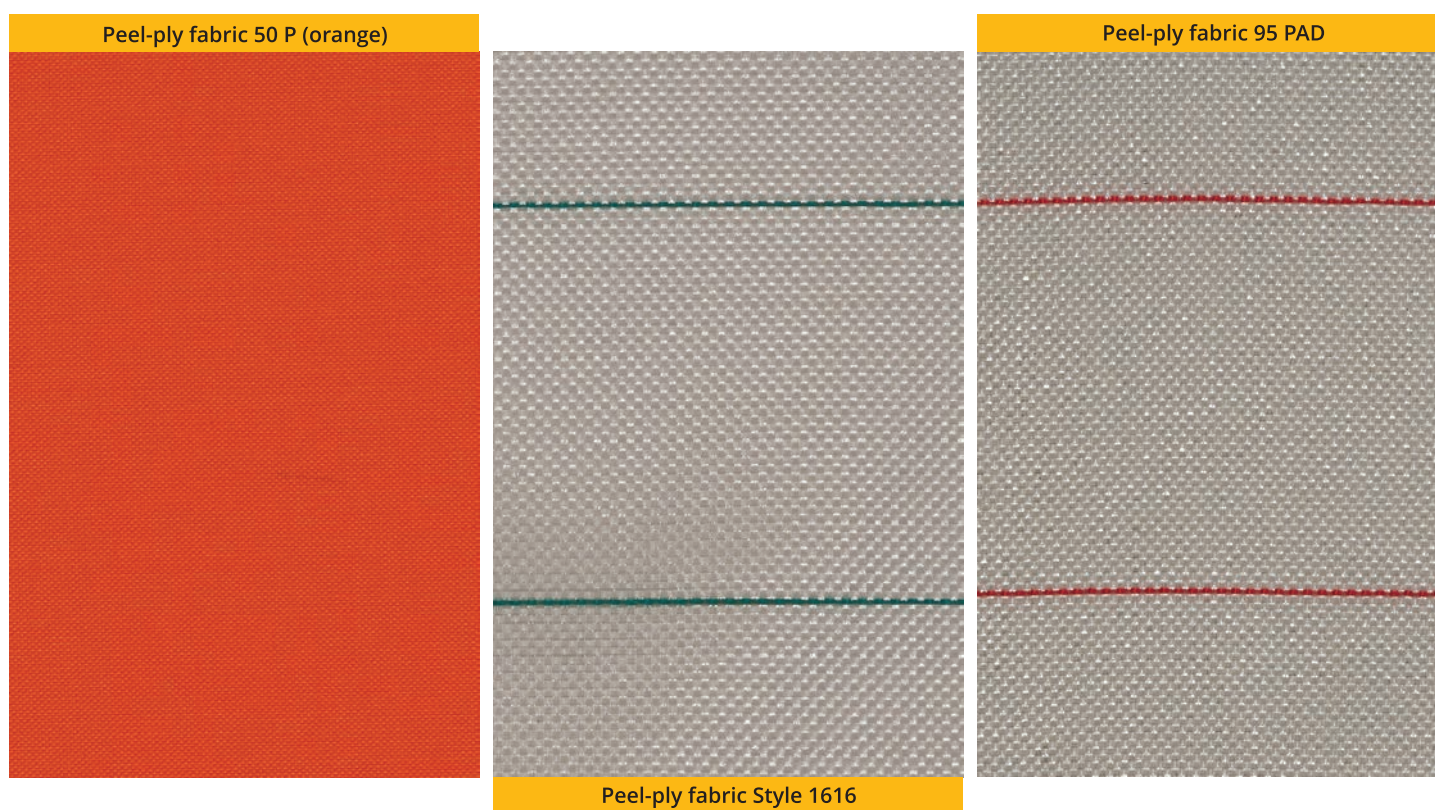
Bleeders, breathers and multilayer systems

Item	Characteristics / Application
Net bleeder ISONET	115 g/m ² , average speed, for temperatures up to 90°C, thickness 900 µ, blue colour, CO PE.
Net bleeder OM 70	180 g/m ² , speed, for temperatures up to 90°C, thickness 1117 µ, black/green colour, PE.
Net bleeder DRAIKO	105 g/m ² , high speed, for temperatures up to 90°C, thickness 1066 µ, black colour, PE.
Net bleeder DIANET 135	135 g/m ² , high speed, for temperatures up to 90°C, thickness 1190 µ, green colour, CO PE.
Net bleeder FLONET	112 g/m ² , very high speed, for temperatures up to 90°C, thickness 1100 µ, yellow colour, CO PE.
Net bleeder DIANET PA	125 g/m ² , high speed, for temperatures up to 200°C, thickness 1050 µ, white colour, PA.
Breather fabric POLY-FLEX TF12	120 g/m ² , 100% polyester, thickness 1,3 mm, width 100 cm, up to 180°C, white, roll length 100 m.
Breather fabric POLY-FLEX TF15	150 g/m ² , 100% polyester, thickness 1,6 mm, width 100 cm, up to 130°C, white, roll length 100 m.
Breather fabric POLY-FLEX TF20	200 g/m ² , 100% polyester, thickness 2,0 mm, width 100 cm, up to 130°C, white, roll length 100 m.
Breather fabric POLY-FLEX TF30	300 g/m ² , 100% polyester, thickness 2,7 mm, width 100 cm, up to 130°C, white, roll length 50 m.
Multilayer infusion system INFUPLEX ISONET	combination of net bleeder ISONET + perforated film ELA20 P1 (average speed)
Multilayer infusion system INFUPLEX OM70	combination of net bleeder OM70 + perforated film ELA20 P1 (speed)
Multilayer infusion system INFUPLEX FLONET	combination of net bleeder FLONET + perforated film ELA20 P0 (very high speed)
Multilayer system VACUOPEEL® PA80 PES200 for vacuum moulding	combination of peel-ply fabric PA80 + bleeder PES200 + perforated film. Standard economic option.
Multilayer system VACUOPLEX® MP PA100ST PES150 for vacuum moulding	microporous multilayer system, combination of pink peel-ply fabric PA100ST + bleeder PES150 + perforated film. For prepreg applications

AUXILIARY MATERIALS, ACCESSORIES AND TOOLS

Peel-ply fabrics

Item	Weaving style	Width (cm)
Peel-ply fabric 50 P	50 g/m ² , plain weave, orange / white / black	152
Peel-ply fabric 64 PAD	64 g/m ² , plain weave, 100% polyamide, white with red stripes	100
Peel-ply fabric PA64	64 g/m ² , plain weave, 100% polyamide, white with red stripes, up to 190°C, for thin surfaces	2 - 157
Peel-ply fabric Style 1616	78 g/m ² , plain weave, 100% polyamide, white with green stripes	1,5 - 150
Peel-ply fabric PA80	80 g/m ² , plain weave, 100% polyamide, white with red & blue stripes, up to 185°C, economic	2 - 156
Peel-ply fabric PA80AD	80 g/m ² , plain weave, 100% polyamide, white with red & blue stripes, up to 185°C, economic + adhesive	2 - 156
Peel-ply fabric 85 PAD	85 g/m ² , plain weave, 100% polyamide, white with red stripes	100
Peel-ply fabric PA90	90 g/m ² , plain weave, 100% polyamide, pink with blue stripes, up to 185°C, for carbon	2 - 156
Peel-ply fabric PES90	90 g/m ² , plain weave, 100% polyester, white with orange & green stripes, up to 210°C, phenolic	2 - 164
Peel-ply fabric 95 PAD	95 g/m ² , plain weave, 100% polyamide, white with red stripes	1,5 - 150



Laminating rollers

Item	Characteristics / Application
Paddle Roller (lengthwise grooved)	most popular and best value roller. Manufactured from aluminium extrusion, mounted on a galvanised wire frame with an ergonomic plastic handle. Easily cleaned in acetone. Available sizes: 50 x 21 mm; 100 x 21 mm.
Bubble Buster (lengthwise grooved, V-roller)	specialty aluminium roller combining the conventional paddle design with a "V" notch, to reduced the amount of spray. Available sizes: 50 x 21 mm; 100 x 21 mm.
Finned Roller (straight across grooved)	easy to use tool with reduced spray back. These tools are good for detail work and provide an efficient air removal as well as good consolidation. Light weight aluminium tools. Available sizes: 35 x 14 mm; 75 x 14 mm; 100 x 14 mm.
Steel Bolt Roller (straight across grooved, thread)	metal roller wich provides very good air removal and a smooth finish. Ideal for difficult areas and detailed work. Easy to clean. Available sizes: 10 x 50 mm; 10 x 100 mm; 20 x 50 mm; 20 x 100 mm.
Disc Corner Roller D 150	aluminium roller used to press the fibres and resin into the corners of a mould to create definition. Diameter 4 mm.
Disc Corner Roller D 150P	plastic roller used to press the fibres and resin into the corners of a mould to create definition. Diameter 4 mm.
Plastic Finned Roller (straight across grooved)	plastic roller manufactured from Acetal, with excellent non stick properties, which makes it very easy to clean. This tool is non marking for when the finish is the top priority. Available sizes: 70 x 10 mm; 50 x 15 mm; 100 x 15 mm; 50 x 20 mm; 100 x 20 mm; 50 x 25 mm; 100 x 25 mm.
Bristle Brush	metal roller with pig bristle mounted on a spiral core. Suitable for puncturing air bubbles in polyester laminates with uneven surfaces. Available sizes: 22 x 50 mm; 22 x 100 mm.
Barrel Fin Roller (straight accross grooved, barrel-shaped)	aluminium roller which allows precise work whilst maintaining the efficiency of good air removal. Specially created for use on curved areas. Available sizes: 50 x 16/25/16 mm; 75 x 22/25/22, 70 x 10/12/10.

Paddle roller



Fined roller ALU



Bubble buster - V-roller



