
EUROCARBON
advanced fibre braiding and weaving technology
STANDARD PROGRAM
PRODUCT CATALOG
2020

Together we'll make the difference.

Innovation starts with ambition.
Will power and perseverance are the key elements to develop something new or improve an existing product. If you can think impossible thoughts, then you can do impossible things. We at Eurocarbon know this best.

Since 1982 Eurocarbon is a producer of braided and woven reinforcements, mainly applied in the composites industry. We make products better, safer, stronger and more sustainable. Creating brand new products together with our clients is also part of our skill set.

What's your ambition?
Our specialists are eager to get in touch with you. By combining our powers and expertise we can map out the possibilities together. Whenever your idea is not enforceable, we will look at alternatives. Only by thinking creatively and unconventional, new insights will be born. And that's exactly what we're good at.

Share your ambition with us. Together we'll make the difference.

EUROCARBON
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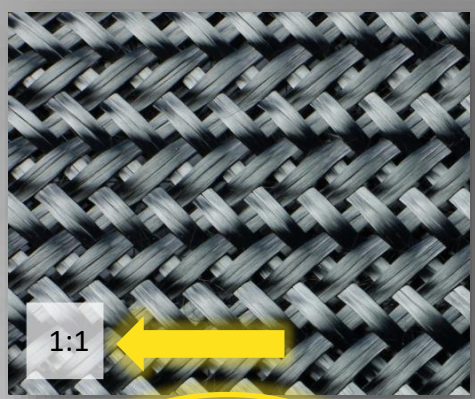
PRODUCT CATALOG
INFORMATION

The pictures used in this catalog are scaled 1:1. Meaning the white square in each picture is exactly 1 cm by 1 cm. The pictures therefore give an exact view on how the product would look like in reality.



D 144/5

The article numbers, as used in the table, are displayed under the product images.

The camera icon in the product table indicates that a picture of this specific product is added to the catalog.

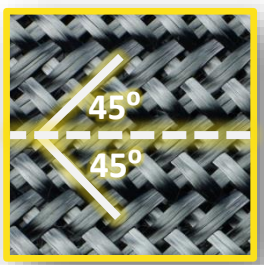
A 48/10	15	
A 68/2	20	
A 96/14	25	
A 120/1	30	
A 144/	40	

PRODUCT CATALOG - ***INDEX***

CUSTOM MADE
BRAIDS AND TAPES

Custom made braids and tapes

Besides our selection of standard programs, Eurocarbon produces a large variety of tailor made constructions.
The benefit is the construction can be fine-tuned to the performance of the part and therefore save costs or increase performance compared to a standard product.
To define a new braid or woven tape, there is a minimum of information required to define tailor made construction. In the next sections the required information is described.



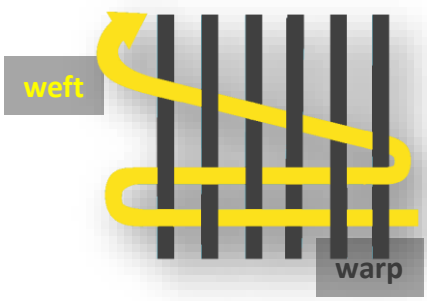
Minimum required information for braids.

- Diameter measured at 45 degree braiding angle (or diameter at specific angle).
- Fiber materials: f.i. Carbon, E-Glass, Aramid, etc
- Hybrid construction? We can braid f.i. Carbon and Glass. Normally the ratio is 50/50 but other ratios can be selected.
- The weight of the braid at 45 degrees braiding angle / or the areal weight at 45 degrees.

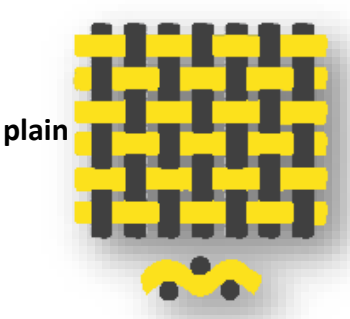
If you have an existing sample for evaluation, please make sure it is approx. 20 cm in length.

Minimum required information for woven tapes

- Width of the tape
- Weight per m^2
- Fibers in warp: Fiberglass, Aramid, Carbon, etc
- Fibers in weft : Fiberglass, Aramid, Carbon, etc
- Weave style (plain/twill/satin/other)
- Threads per cm in warp (if available)
- Threads per cm in weft (if available)



If the threads per cm in warp or weft are unknown, we need the ratio by weight for the warp and weft.
If you have an existing sample for evaluation, please make sure it is approx. 20 cm in length

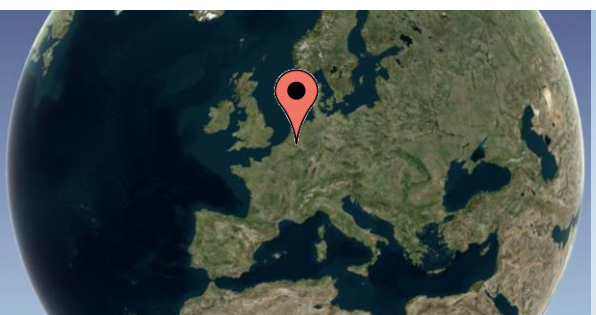


ABOUT EUROCARBON
HISTORY AND FUTURE

EUROCARBON

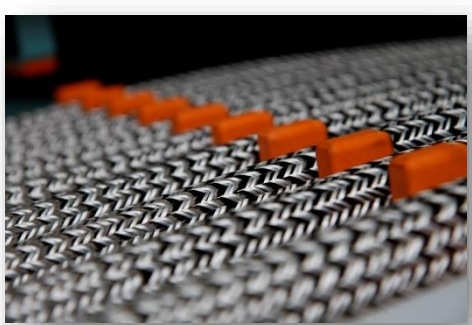
Based in the Netherlands, Eurocarbon is a producer of braided and woven reinforcements, primarily used for composites industry. These braids and woven tapes are made out of high performance reinforcement fibers such as: glass, aramid, carbon and thermoplastics.
In Sittard, we are consulting our customers since 1982, to provide the best possible solution for their application. Check our homepage to search for an agent in your country.

Eurocarbon has implemented standard programs to cover a whole range of standard customer‘s applications. All programs are available on stock and ready to ship off the shelf to provide your reinforcements with a minimum of lead time.
When tailor made applications are required, check the “minimum requirements” section for braided and woven constructions.



EUROBRAIDER

Our sister company Eurobraider is dedicated in series production of overbraided preforms.
The production is made by Eurocarbon designed equipment and automated processes.
Maybe overbraiding could be a solution for you to outsource preforming activities.
See what overbraiding could mean for you in the overbraiding section.

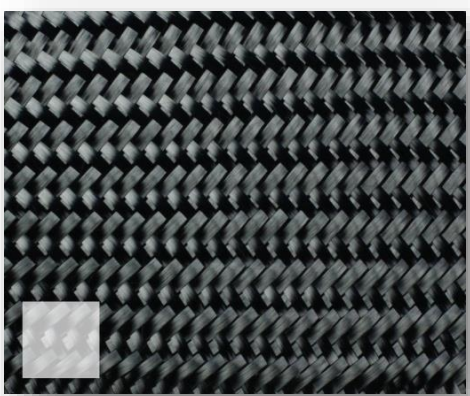


STANDARD PROGRAM
CARBON FIBER BRAIDS

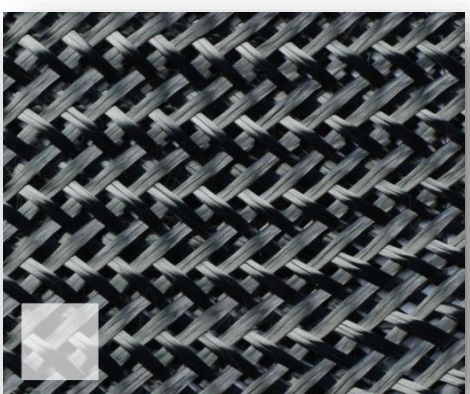
Carbon fiber braids

The tubular carbon fiber braids program is made of high quality carbon fibers.
The fiber densities which we are using, are 3K, 6K and 12K fibers. These fibers create respectively the light, medium and heavy braids in our program.

A 144/01



B 96/15



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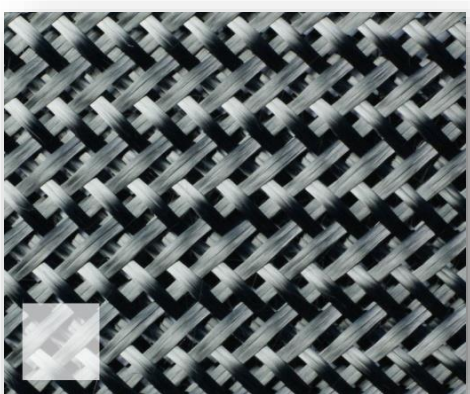


B 120-04

Carbon fiber braids

Light Weight (3K Fibers)

Article	Diameter at ±45° in mm	Weight per m at ±45° (g/m)	Fabric weight g/m²	Thickness at 50% FV mm	Yield m/kg at ±45°
A 24/10	5	7	446	0,46	143
A 36/2	10	10	303	0,40	91
A 48/10	15	14	297	0,31	77
A 60/2	20	17	271	0,35	50
A 96/14	25	27	344	0,40	37
A 120/1	30	34	361	0,40	30
A 144/1	40	41	325	0,37	24

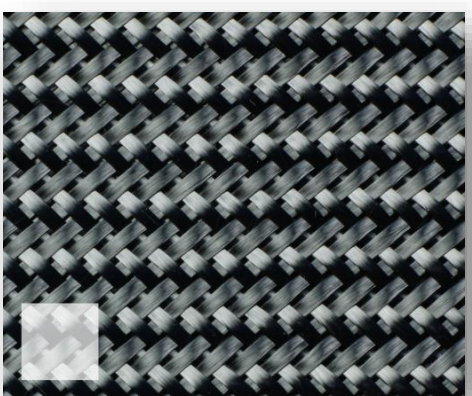
Middle Weight (6K Fibers)

Article	Diameter at ±45° in mm	Weight per m at ±45° (g/m)	Fabric weight g/m²	Thickness at 50% FV mm	Yield m/kg at ±45°
B 24/6	10	14	446	0,47	77
B 36/1	15	20	424	0,48	50
B 48/9	20	27	430	0,48	37
B 60/1	25	34	433	0,55	26
B 80/2	30	45	458	0,56	21
B 96/15	40	54	430	0,48	19
B 96/9	50	54	344	0,39	19
B 120/7	60	68	361	0,41	15
B 144/5	70	81	368	0,40	13
B 96/24	80	109	434	0,49	9,3
B 120/5	90	136	481	0,55	7,4
B 120/4	100	136	433	0,57	7,2
B 144/6	125	163	415	0,47	6,3

Carbon fiber braids

Heavy Weight (12K Fibers)

Article	Diameter at ±45° in mm	Weight per m at ±45° (g/m)	Fabric weight g/m²	Thickness at 50% FV mm	Yield m/kg at ±45°
D 36/7	20	41	634	0,74	24
D 36/8	25	40	522	0,58	25
D 48/14	30	54	554	0,65	18,5
D 60/1	40	68	541	0,70	13
D 80/1	50	91	579	0,72	10,3
D 96/29	60	112	578	0,69	8,9
D 120/2	70	132	618	0,69	7,6
D 144/10	80	161	649	0,73	6,2
D 144/11	90	164	576	0,67	6,1
D 96/33	100	212	691	0,76	4,7
D 120/3	125	270	693	0,77	3,7
D 144/5	150	331	692	0,80	3



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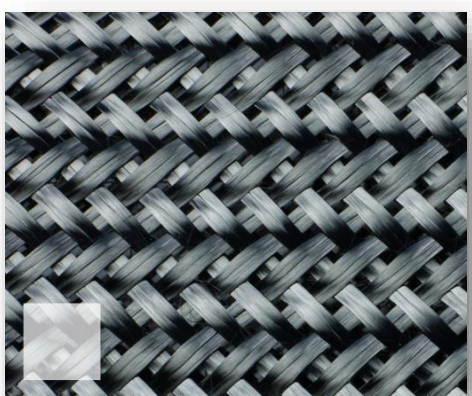


D 144/5

STANDARD PROGRAM
CARBON FIBER ELASTIC UD

The ideal solution to apply Tubular UD reinforcement around your preform.

This will provide the following advantages:

- Provide bending stiffness/ strength for your component
- Compaction of underlying layers, due to the elastic weft
- Once applied, the preform is stable during handling
- No undulation in the UD fibers
- Time saving compared to regular UD solutions
- No adhesives used
- Elastic weft has a melting point of 220°C
- Easy to use

Elastic UD Tube Areal Weight 510 g/m2 at Nominal Diameter

Article	Weight g/m	Weight g/m² Nominal Diameter°	Minimal Diameter mm	Nominal Diameter mm	Maximal Diameter mm
1012/20	32	510	15	20	30
1012/40	64	510	30	40	50
1012/60	96	510	50	60	70
1012/80	128	510	60	80	100
1012/100	160	510	80	100	120
1012/120	192	510	100	120	140

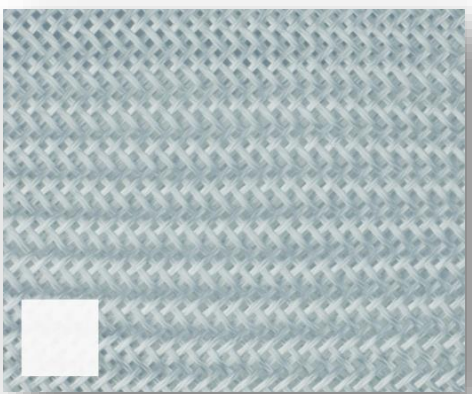
1012/20

1012/40

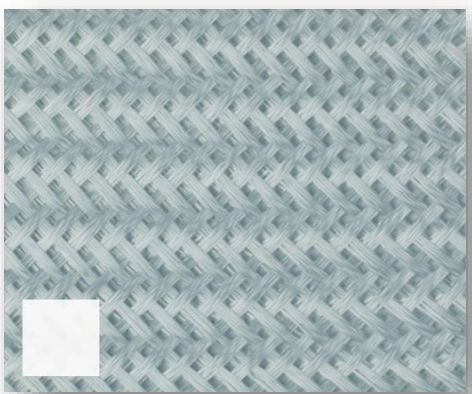
STANDARD PROGRAM
GLASS FIBER BRAIDS

Glass Fiber Braids

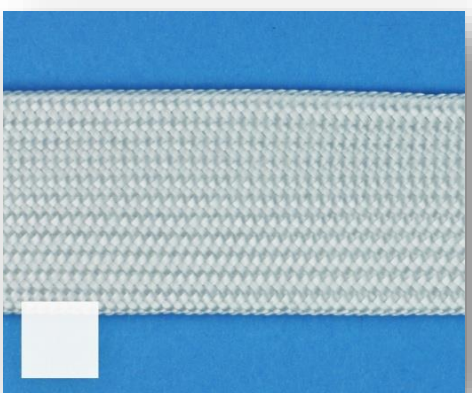
The tubular glass fiber braids program is made of A-grade E-glass yarns.
To cover a whole range of thicknesses, the program is made of a light, medium and heavy construction. Each range will have a specific range areal weights.



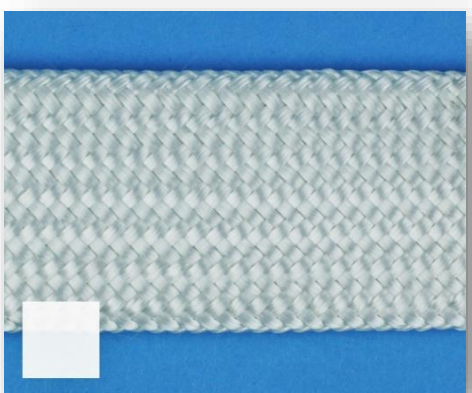
GL 050-046



GL-100-112



GM-020-041



GM-025-051

STANDARD PROGRAM
GLASS FIBER BRAIDS

Glass fiber braids

Light Weight (±300 gram/m²)

Article	Diameter at ±45° in mm	Weight per meter (g/m)	Fabric weight g/m²	Thickness at 50% FV mm	Yield m/kg at ±45°
GL 005-005	5	5	293	0,23	217
GL 010-009	10	9	293	0,23	109
GL 015-015	15	15	318	0,25	67
GL 020-018	20	18	287	0,22	56
GL 025-023	25	23	292	0,23	44
GL 030-028	30	28	297	0,24	36
GL 040-036	40	36	287	0,22	28
GL 050- 046	50	46	293	0,23	22
GL 060-056	60	56	297	0,24	18
GL 070-072	70	72	327	0,26	14
GL 080-084	80	84	334	0,27	12
GL 090-084	90	84	297	0,24	12
GL 100-112	100	112	356	0,29	9,3

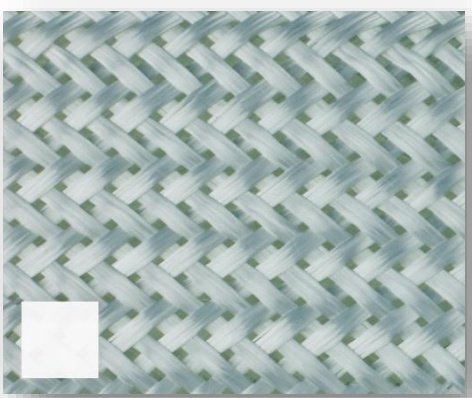
Middle Weight (±650 gram/m²)

Article	Diameter at ±45°	Weight per m at ±45° (g/m)	Fabric weight g/m²	Thickness at 50% FV mm	Yield m/kg at ±45°
GM010-020	10 mm	20	640	0,51	50
GM015-034	15 mm	34	720	0,58	29
GM020-041	20 mm	41	653	0,52	24
GM025-051	25 mm	51	650	0,52	20
GM030-068	30 mm	68	720	0,58	14,7
GM040-081	40 mm	81	645	0,52	12,3
GM050-102	50 mm	102	650	0,52	9,8
GM060-122	60 mm	122	648	0,52	8,2
GM070-152	70 mm	152	692	0,55	6,6
GM080-152	80 mm	152	607	0,49	6,6
GM090-183	90 mm	183	648	0,52	5,5
GM100-203	100 mm	203	647	0,52	4,9
GM125-244	125 mm	244	622	0,50	4,1

Glass fiber braids

Heavy Weight (±1000 gram/m²)

Article	Diameter at ±45° in mm	Weight per m at ±45° (g/m)	Fabric weight g/m²	Thickness at 50% FV mm	Yield m/kg at ±45°
GH010-031	10	31	987	0,79	32
GH015-046	15	46	977	0,78	22
GH020-061	20	61	971	0,78	16
GH025-076	25	76	968	0,77	13
GH030-102	30	102	1082	0,87	9,8
GH040-127	40	127	1011	0,81	7,9
GH050-152	50	152	968	0,77	6,6
GH060-203	60	203	1077	0,87	4,9
GH070-236	70	236	1073	0,86	4,2
GH080-244	80	244	971	0,78	4,1
GH090-284	90	284	1005	0,80	3,5
GH100-325	100	325	1035	0,83	3,1
GH125-365	125	365	930	0,74	2,7
GH150-487	150	487	1034	0,83	2,1
GH175-609	175	609	1108	0,89	1,6
GH200-609	200	609	970	0,78	1,6



GH-050-152

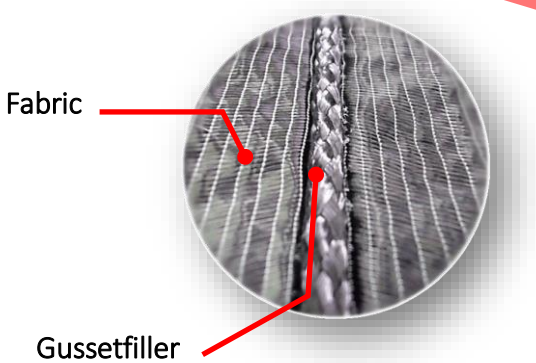
GH-200-609

STANDARD PROGRAM
GUSSET FILLERS

How to find a filler match for your application

Eurocarbon has developed a wide range of fillers. Each filler has a specific surface area in mm^2 at a fiber volume fraction of 50%.

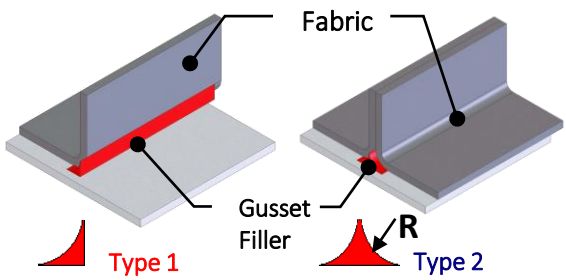
Follow the following steps to define a suitable filler for your application.



STEP 1

Determine the radius type, 1 or 2.

For example R= 7 type 1



STEP 2

Find your radius in the table and read the surface area in mm^2 associated with type 1 or 2.

Result is 10,52 mm^2

Area in mm^2

Radius	Type 1	Type 2
3	1,93	3,86
4	3,43	6,87
5	5,37	10,73
6	7,73	15,45
7	10,52	21,03
8	13,73	27,47
9	17,38	34,77
10	21,46	42,92

STEP 3

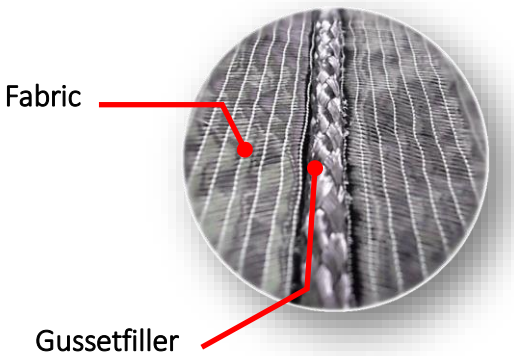
Look at the table for the cross section in mm^2 for the filler.
Find a close match between the calculated mm^2 and the mm^2 from the filler program.

The best match is Aero BIB 2003
Calculated = 10.52mm^2, match is 10.5mm^2

Aero Filler

Article	Cross-section area in mm^2 50% FV
AERO BIB 2001	3,6
AERO BIB 2002	7,1
AERO BIB 2003	10,5
AERO BIB 2004	14,4

STANDARD PROGRAM
GUSSET FILLER UD

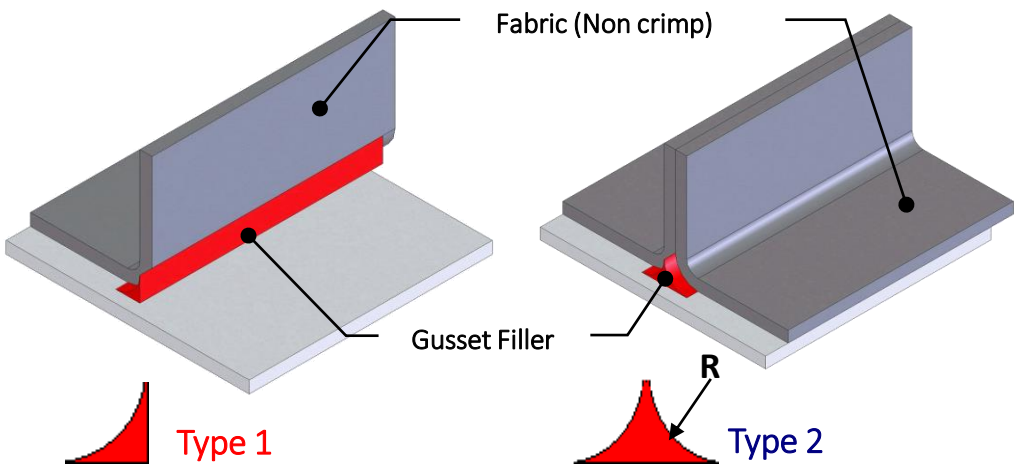


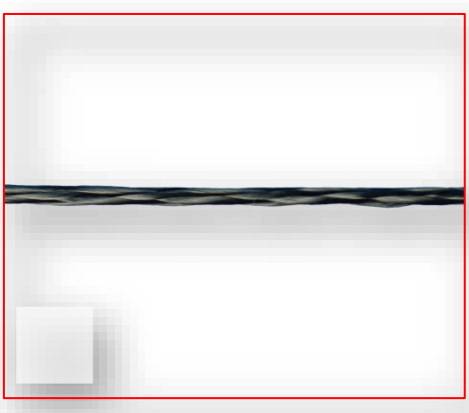
Gusset Filler Carbon UD and Glass Fiber UD

When fabrics are plied into shapes like type 1 and type 2 a hollow space is created. In injection systems this hollow space will create a runner where the resin will go through without respecting the resin front. If this behavior is not desired a filler is needed to 'plug' the created resin channel and to provide local reinforcement.

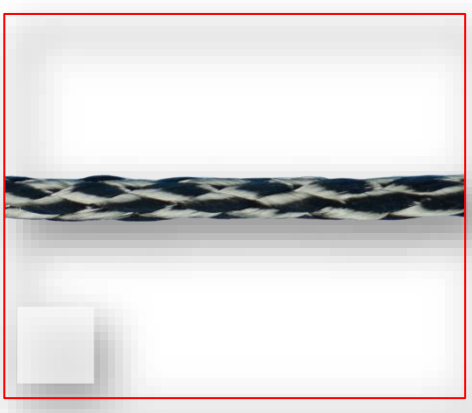
Advantages:

- Easy to form into triangular shape
- Permeability compatible with fabrics
- Constant architecture, compared to handmade fillers
- Time and money saving when it comes to blocking your undesired runners





L 008/04

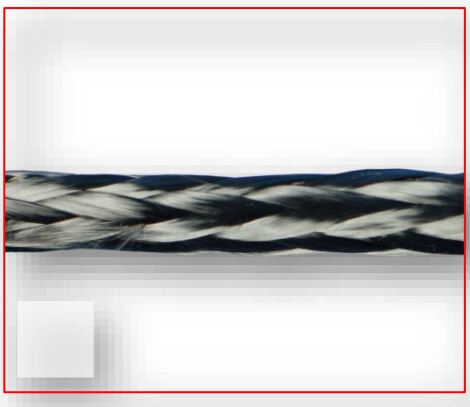


L 008/10

Gusset Filler UD

Area in mm²

Radius	Type 1	Type 2
3	1,93	3,86
4	3,43	6,87
5	5,37	10,73
6	7,73	15,45
7	10,52	21,03
8	13,73	27,47
9	17,38	34,77
10	21,46	42,92



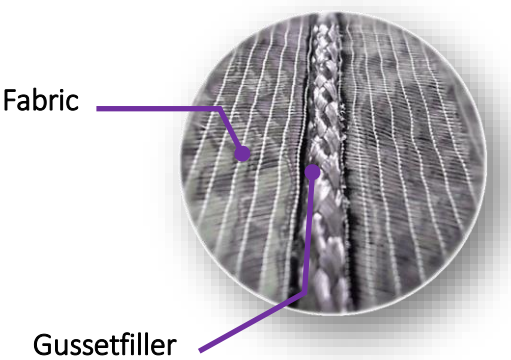
L 016/07

Gusset Filler UD

Article	Diameter in mm	Weight per m (g/m)	Cross-section area in mm² 50% FV
B 008/01	1,7	3,5	3,9
L 008/04	2,5	4,4	4,9
L 008/05	3,0	5,3	5,88
L 008/06	3,5	7,7	8,56
L 008/07	3,8	10,1	11,2
L 008/08	4,1	12,6	14,0
L 008/09	4,4	15	16,6
L 008/10	5,4	20,3	22,6
L 008/11	6,0	25,6	28,4
L 008/12	6,1	30	33,4
L 008/13	7,0	35,2	39,2
L 008/14	7,7	41	45,6
L 016/07	10	51	56,6

STANDARD PROGRAM
BRAIDED AERO FILLER

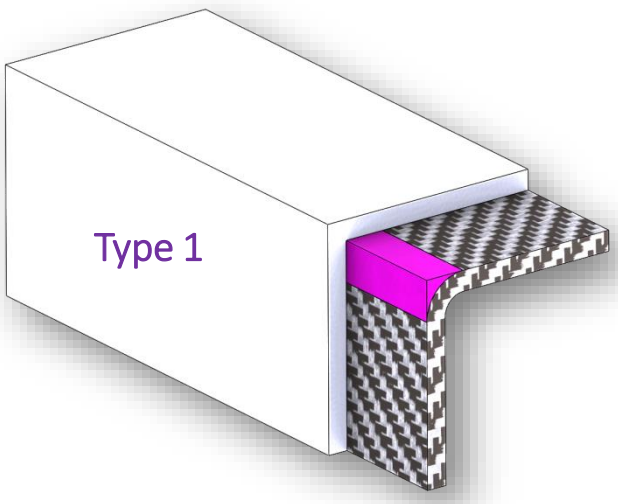
Standard Braided Aero Filler Program

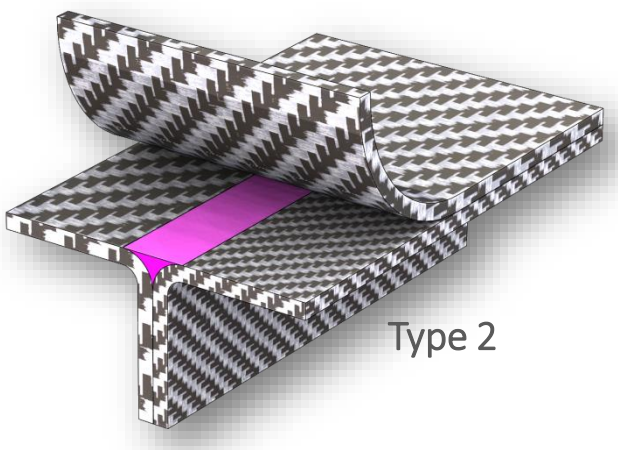


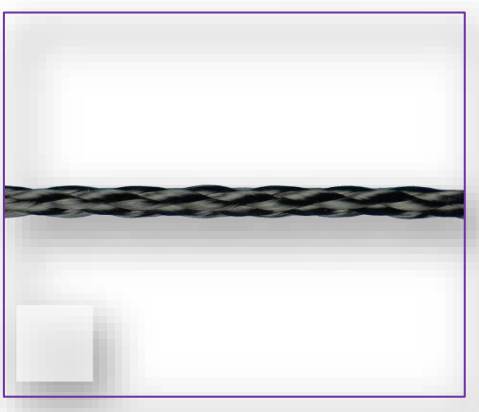
When fabrics are plied into shapes like type 1 and type 2 a hollow space is created. In injection systems this hollow space will create a runner where the resin will go through without respecting the resin front. If this behavior is not desired a filler is needed to 'plug' the created resin channel and to provide local reinforcement.

Advantages:

- Easy to form from original round shape into triangular shape
- Permeability compatible with fabrics
- Constant architecture, compared to handmade fillers
- Time saving compared to handmade fillers
- Made of Aero grade carbon fibers
- No UD content (no high stress concentrations)







AERO BIB 2002

AERO BIB 2005

Braided Aero Filler

Area in mm²

Radius	Type 1	Type 2
3	1,93	3,86
4	3,43	6,87
5	5,37	10,73
6	7,73	15,45
7	10,52	21,03
8	13,73	27,47
9	17,38	34,77
10	21,46	42,92
11	25,97	51,93
12	30,90	61,81
13	36,27	72,54
14	42,06	84,12

AERO BIB 2012

Certified for Aerospace Applications

Aero Filler

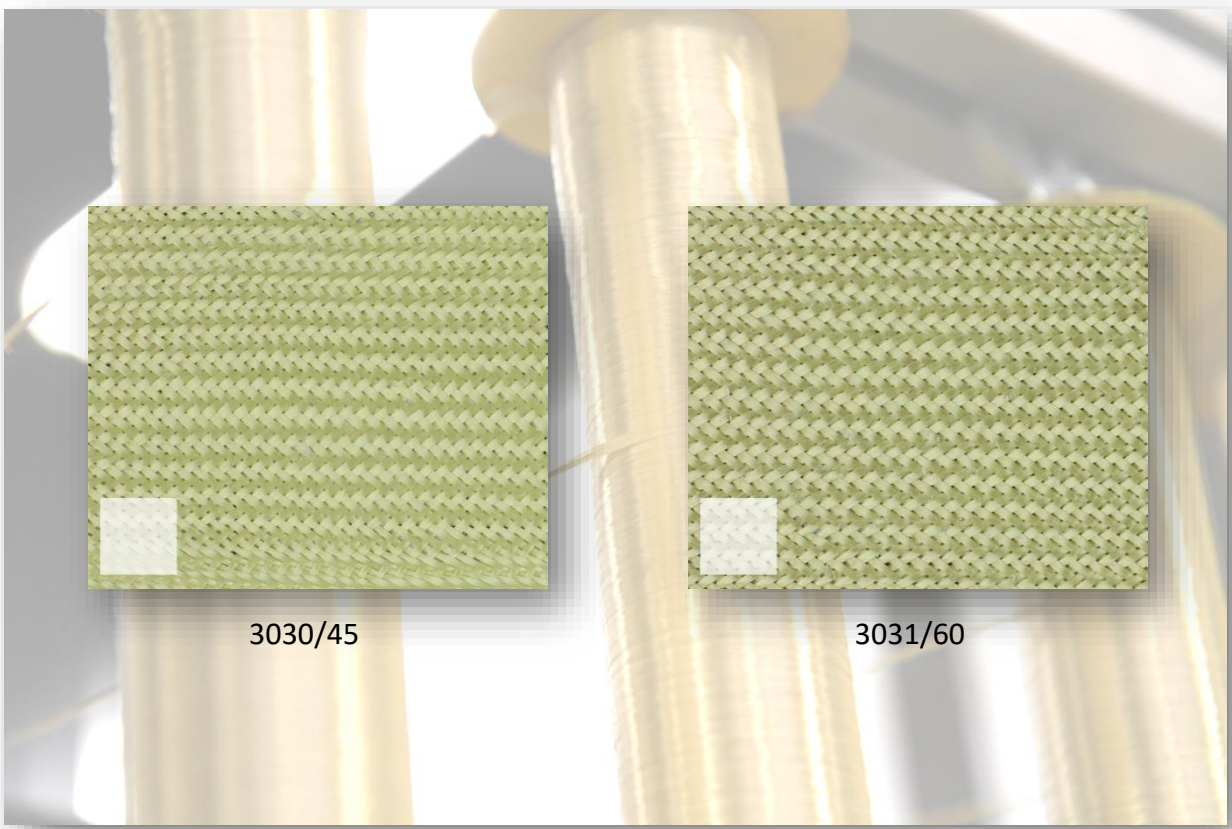
Article	Diameter in mm	Weight per m (g/m)	Cross-section area in mm² 50% FV
AERO BIB 2001	2	3,2	3,6
AERO BIB 2002	3	6,4	7,1
AERO BIB 2003	3,5	9,5	10,5
AERO BIB 2004	4	13,0	14,4
AERO BIB 2005	5	16,5	18,3
AERO BIB 2006	5,5	20	22,2
AERO BIB 2007	6,5	26	28,3
AERO BIB 2008	7,5	33	37,0
AERO BIB 2009	8	40	44,0
AERO BIB 2010	9	47	52,1
AERO BIB 2011	9,5	56	62,0
AERO BIB 2012	10	69	77,0
AERO BIB 2013	11	84	93,0

Aramid flat braids

Flat braids are a single layer braid (non tubular), which have the same properties of excellent drape ability.

It is possible to form an “L” profile which is curved. This behavior makes it suited to reinforce radial pipe connections.

For sports the Aramid flat braid is commonly used to bond 2 canoe halves together. Then the ±45° fibers will both work, compared to a fabric, which has one functional direction.
Aramid fibers are very wear resistant.



Aramid flat braids

Aramid Flatbraids areal weight ± 300 gm/m²

Article	Number of carriers	Stretched Width in mm	Width in mm at ± 45º	Stretched Weight g/m	Roll length in m
3029/10	25	10	14	3,9	250
3029/13	33	13	17	4,9	200
3029/20	49	20	25	6,5	150
3029/25	65	25	32	8,6	100
3029/40	81	40	50	11,2	100

Aramid Flatbraids areal weight ± 400 gm/m²

Article	Number of carriers	Stretched Width in mm	Width in mm at ± 45º	Stretched Weight g/m	Roll length in m
3030/12	25	12	15	4,0	200
3030/17	33	17	22	6,5	150
3030/25	49	25	30	10	100
3030/35	65	35	45	13	100
3030/45	81	45	50	16	50

Aramid Flatbraids areal weight ± 500 gm/m²

Article	Number of carriers	Stretched Width in mm	Width in mm at ± 45º	Stretched Weight g/m	Roll length in m
3031/15	25	13	15	7,5	100
3031/20	33	16	20	10	100
3031/30	49	25	30	15	50
3031/40	65	35	50	19	50
3031/60	81	50	60	23	50

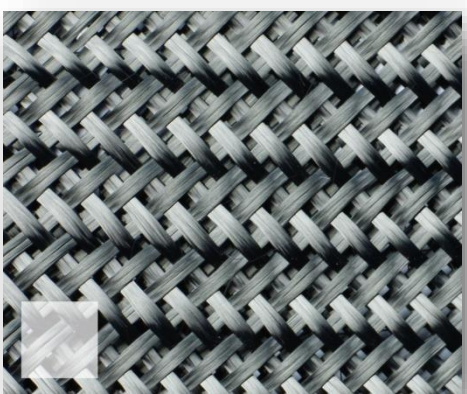
Orthopedic Unidirectional Tapes and Tubular Braids

Eurocarbon is capable of weaving tapes from 10 mm up to 360 mm width, in unidirectional or several different weaving styles.

This section is meant to give you an idea what kind of products are frequently used in the orthopedic market and probably you will find products which are familiar to you. The program contains braids for torsional reinforcement and woven UD tapes for bending loads. Besides this program we can serve you with a wide range of braids and tapes.

Uni-directional tapes

Article	Material	Weight g/m²	Width in mm						
			19	25	38	45	50	75	100
E	Glass 1200 tex	600		x			x	x	x
G	Carbon 12K	340		x			x	x	x
155	Carbon 12K	375	x	x	x		x	x	x
7014	Carbon 6K/ Glass 34 x 2 tex	394		x			x		
721	Carbon 12K/ Glass 68 x 2 tex	297		x		x	x	x	x



B 144/06

Orthopedic Unidirectional Tapes and Braids

Carbon braids Middle Weight (6K Fibers)

Article	Diameter at ±45° in mm	Weight per meter (g/m)	Fabric weight g/m²	Thickness at 50% FV mm	Yield m/kg
B 048/06	40	27	215	0,24	37
B 080/03	50	48	306	0,34	21
B 144/12	120	82	218	0,24	12,7
B 144/06	125	163	415	0,47	6,1
B 144/15	150	163	346	0,38	6,1
B 144/10	191	163	272	0,30	6,1

Carbon braids Heavy Weight (12K Fibers)

Article	Diameter at ±45° in mm	Weight per meter (g/m)	Fabric weight g/m²	Thickness at 50% FV mm	Yield m/kg
D 060/01	40	68	541	0,60	14,7
D 120/03	125	272	693	0,77	3,7
D 144/09	131	163	396	0,44	6,1
D 144/05	150	326	692	0,77	3,1
D 144/06	191	489	815	0,91	2,0

Glass Braids

Article	Diameter at ±45° in mm	Weight per meter (g/m)	Fabric weight g/m²	Thickness at 50% FV mm	Yield m/kg
144/43	110	111	315	0,25	9,0
144/44	115	166	459	0,36	6,0
144/45	192	194	320	0,25	5,2

Hybride Braids (Glass and Carbon)

Article	Diameter at ±45° in mm	Weight per meter (g/m)	Fabric weight g/m²	Thickness at 50% FV mm	Yield m/kg
H 144/11	113	124	349	0,32	8,1
H 144/10	155	126	254	0,23	8,1

HMPE-Braids

HMPE (High Modulus Polyethylene) braids

Since its commercialization, HMPE has been broadly used for numerous applications.

It has proven to be resistant to concentrated acids and alkalis, as well as numerous organic solvents. Furthermore it has extremely low moisture adsorption, a very low coefficient of friction, is self-lubricating and highly resistant to abrasion.

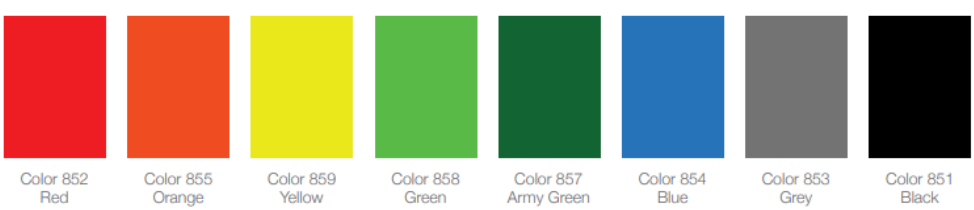
However, it is best known for its excellent impact strength in combination with its low density.

HMPE braids (1760 dtex)

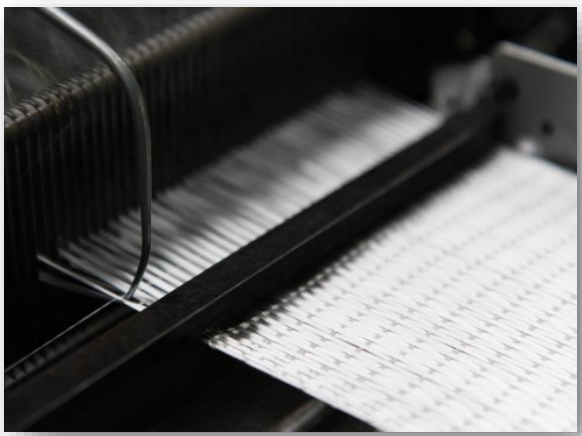
Article	Diameter at ±45° [mm]	Weight per meter at ±45° [g/m]	Fabric weight [g/m²]	Yield at ±45° L[m/kg]
HMPE 010-018	10	18	573	56
HMPE 015-024	15	24	509	42
HMPE 020-030	20	30	477	33
HMPE 025-060	25	60	764	17
HMPE 030-060	30	60	637	17
HMPE 035-060	35	60	545	17
HMPE 040-072	40	72	573	14
HMPE 050-036	50	72	458	14

Colored braids? Yes, we can!

Although the braids in our standard program are white, we can manufacture HMPE braids in a variety of colors. A combination of two or more colors is possible as well!
Please contact our sales department for the possibilities!



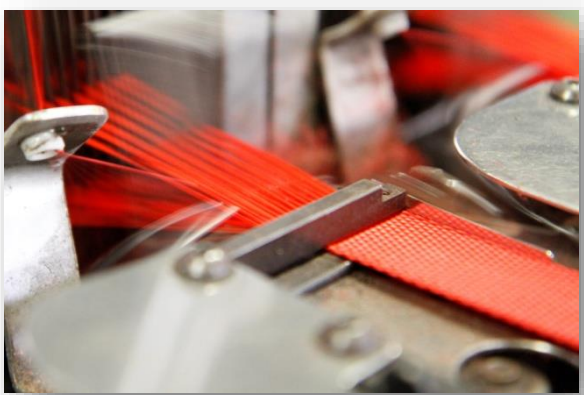
Woven tapes

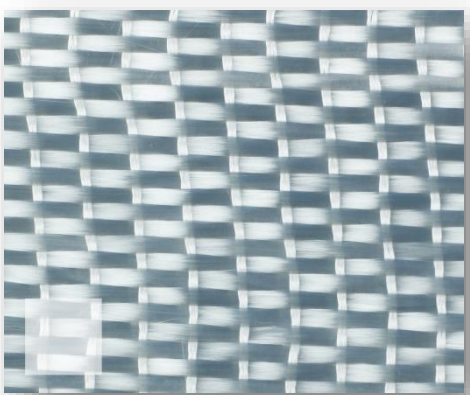


Eurocarbon is a manufacturer of both woven and unidirectional tapes in several different styles and reinforcement materials. Tapes provide reinforcement in the 0 and 90 degrees direction.

With the standard program woven tapes, we are able to supply a selection of woven tapes, in an off-the shelf delivery.

The available widths for each weave construction are marked with a “X” when available in this width. Other widths may be available. Contact our sales department for more information.





E-100

Woven tapes

Uni-directional tapes

Article	Material	Thickness in mm	Weight g/m²	Width in mm (available)						
				12,5	25	37,5	50	75	100	120
E	Glass	0,45	600		X	X	X	X	X	
G	Carbon 12K	0,45	340		X	X	X	X	X	X
155	Carbon 12K	0,50	375		X		X	X	X	
1009	Carbon 3K	0,28	200				X		X	
301	Aramid	0,28	205	X	X	X	X			
708	Carbon/Aramid 1:1	0,50	330		X	X				
703	Carbon/Glass 1:1	0,42	480		X	X				
911	Dyneema	0,35	115		X					

Thickness is calculated at 50 Vol% Fiber Fraction

Woven Tapes

Article	Material	Thickness in mm	Weight g/m²	Width in mm (available)						
				12,5	25	37,5	50	75	100	120
521	Glass	0,13	140		X		X			
568	Glass	0,23	205		X		X	X	X	
501	Glass	0,28	290		X		X	X	X	X
507	Glass	0,35	450		X		X	X	X	
186	Carbon 3K	0,22	200		X		X	X	X	
118	Carbon 3K	0,55	250		X		X	X	X	
125	Carbon 12K/6K	0,75	530		X		X	X		
341	Aramid	0,30	190		X		X			
320	Aramid	0,35	270		X		X			

Place the width behind the article number when ordering, example: E/37½ or 125/75

Preforms made by the Overbraiding Technique

- Overbraiding is the technique used to produce net shape cost-effective structural preforms.
- During overbraiding the braid is placed directly onto a core, which has the inner geometry of the desired preform.
- By reciprocating the core through the braiding point a pre-selected number of layers can be braided, to obtain the desired wall thickness/areal weight.
- The lightweight core can remain in the product or a lost core technique can be used for production of a hollow product.

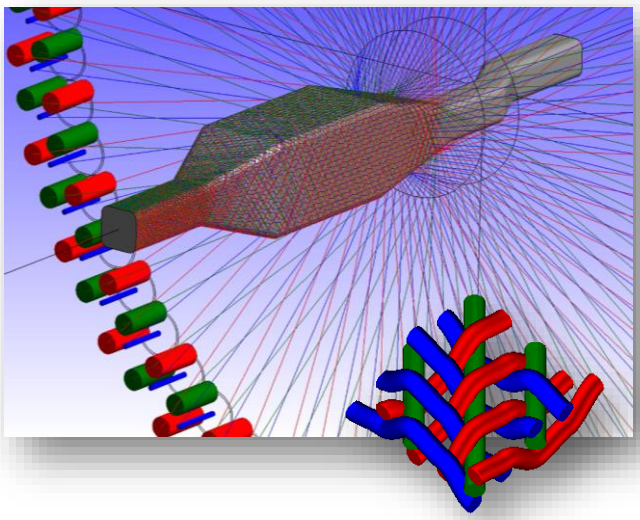
Benefits of Overbraiding

- Cost effective method and low waste rates (5-10%).
- Reproducible due to computer control and automated processes.
- Time saving compared to building your own preforms manually.
- Braiding angles are programmable from 30° to 80°.
- 0° (UD) yarns can be integrated to form a tri-axial braid. Bias is effective for torsion, UD for bending.
- The ratio between Bias / UD can vary from 100/0 up to 10/90.
- Hybrids are possible in the bias and in the UD direction.
- Excellent energy absorption in crash structures. Braided structures act as crack stoppers.
- Braided structures have a good resin permeability.
- Eccentric products are possible, even double curved preforms.
- Preforms injected with the RTM process can have a fiber volume fraction of 55%.

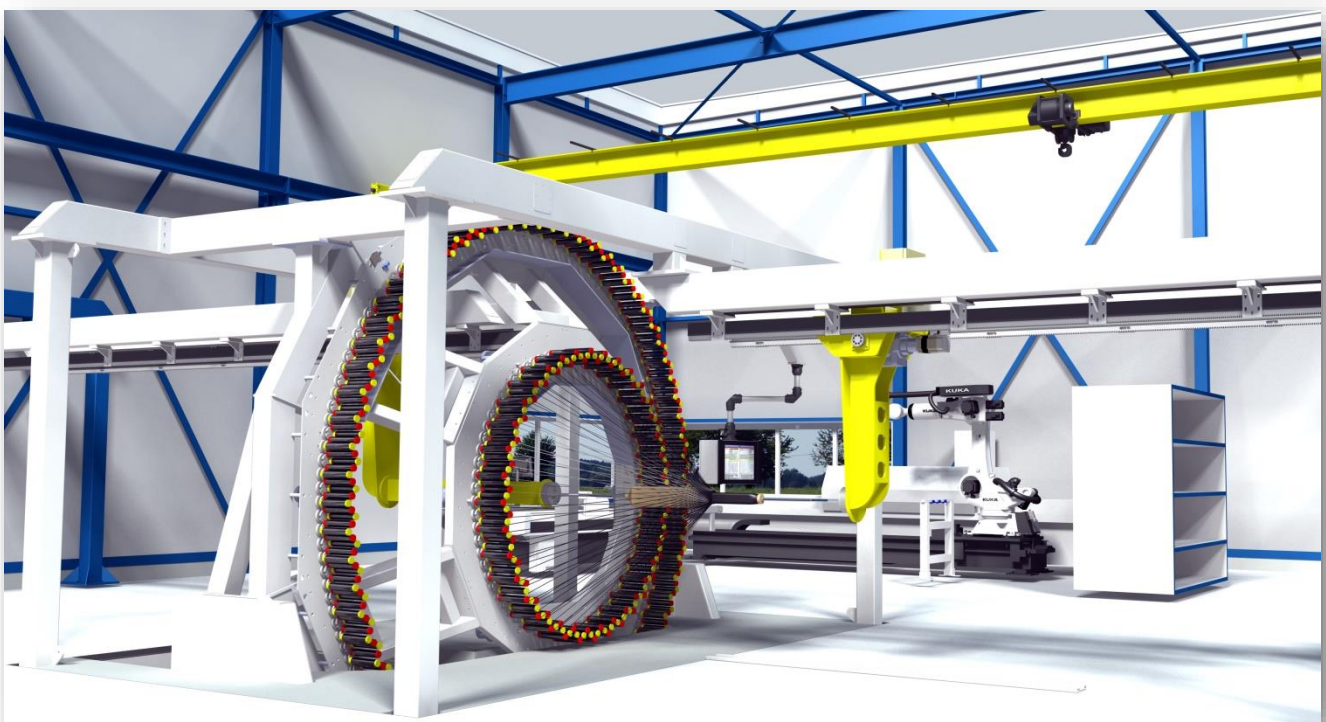
Carbon fiber monocoque

Lamborghini Aventador

What we offer



- For each product an overbraiding machine and yarn configuration can be selected to produce your optimum preform configuration.
- We are overbraiding since 1994 and with our R&D team we are able to do the total preform development at Eurocarbon.
- When a special braiding machine or extra equipment is needed, we can build it.
- We can offer a turn key solution and transfer of know-how, so you can produce your own preforms, backed up with our experience.
- Preform development (Eurocarbon) and preform production (Eurobraider) can be done entirely in house.



The 288 carrier overbraiding installation for the ACM Pilot Plant – NLR, built by Eurocarbon

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advanced fibre braiding and weaving technology

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