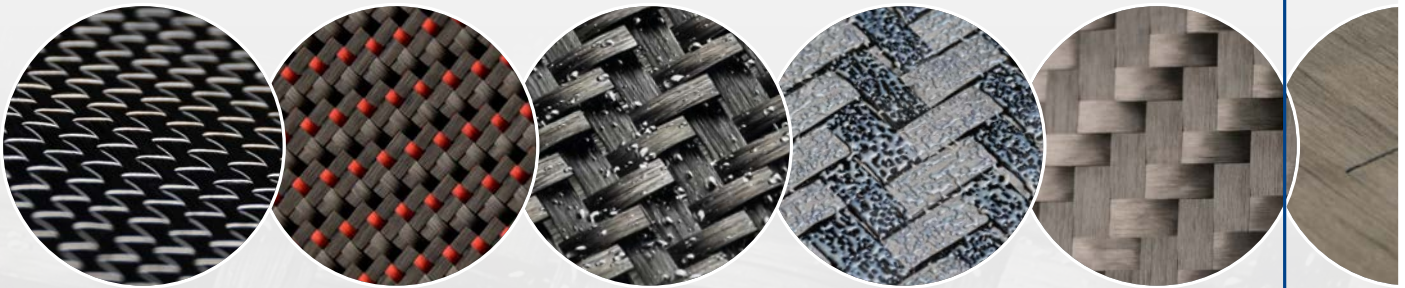




ENGINEERED CRAMER COMPOSITES PRODUCT INFORMATION



YOUR PARTNER FOR
COMPOSITE SOLUTIONS



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OVERVIEW

ECC - Engineered Cramer Composites is the composite division of C. Cramer & Co.[®], one of Germany's oldest manufacturers of industrial textiles, founded in 1947.



HEADQUARTER GERMANY

Heek-Nienborg, NRW



PRODUCTION SITE USA

Dover, New Hampshire



OUR TEAM

- 270 employees in Germany
- 50 employees in the USA



OUR HISTORY

- Serving the composite market since 1980
- 70 years of industrial textile experience



QUALITY & CERTIFICATIONS

- 100% fabric inspection
- ISO 9001 since 1994
- ISO 9100 since 2010
- EN50001:2011 since 2014



WORLDWIDE PARTNERS

Supplying customers in more than 50 different countries



RESEARCH & DEVELOPMENT

- ▶ Innovative product development
- ▶ Close cooperation with suppliers and customers
- ▶ Advanced weaving studio



eCellent[®]

premium product line

With ECCs premium product line we offer our clients high-quality biaxial, unidirectional, and non-crimp fabrics for composite applications. This product line provides our clients high end solutions to meet their increasing demand for qualitatively reliable products. All products are inspected against our proprietary default catalogue meeting the high quality requirements of the automotive and aerospace industry. ECCellent[®] products differentiate themselves in comparison to our conventional composite products by the sum of their qualitative characteristics.



eFabrics

Established to meet the high quality requirements of the automotive industry for decorative applications. eFabrics enable a higher surface coverage with the benefit of producing a flatter tow resulting in a fabric with less crimp, enhanced mechanical properties and superior visual quality.

- AUTOMOTIVE VISUAL QUALITY LEVEL
- IMPROVED SURFACE COVERAGE
- 100% INSPECTED



eSpread

eSpread and the technology behind it allow lower count filament fiber to be replaced by higher filament count fiber, while the lower weight is maintained (e.g., 200 g/m² with 12K carbon fiber instead of 3K fiber).

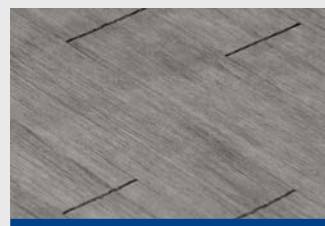
- IMPROVED MECHANICAL PROPERTIES
- REDUCED CRIMP AND THICKNESS
- >99% SURFACE COVERAGE



eUD

eUD is our premium brand in area of high performance unidirectional reinforcement composites. Using high filament count (12K and 24K) standard and intermediate modulus fiber, ECC uses its fiber spreading technology to produce unidirectional (tape like) fabrics utilizing very fine weft fibers.

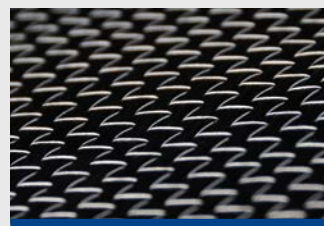
- >99% CARBON FIBER CONTENT
- ZERO CRIMP
- REDUCED THICKNESS



eMax

When it comes to multiaxial fabrics, our eMax line of non-crimp fabrics is continually optimized to meet the rigorous requirements of Aerospace and Automotive applications. We strive to meet and exceed the Aerospace industry's requirement with respect to quality, reliability and ease of process.

- CLASS-A SURFACE LEVEL
- TAILORMADE SOLUTIONS
- IMPROVED MECHANICAL PROPERTIES



eFinish

eFinish offers several different finishing steps for fabrics. We apply Epoxy and Polyester based polymers to stabilize fabrics for the purposes of improving downstream processes like cutting, stamping, preform layup and RTM layup. Lightweight polymeric fleeces can be laminated to the fabrics along with lightweight fiberglass scrims.

- IDEAL FOR PREFORMING
- EASY CUTTING
- CONTROLLED STAMPING



ePreg

Our powder coated "semi-preg" materials are offered under our ePreg brand name. The ePreg thermoplastic product line can be adapted to meet your demanding requirements. They are available in a wide range of polymer (PEEK, PEKK, PC, etc.) and fiber reinforcement (Carbon, Glass, etc.) combinations.

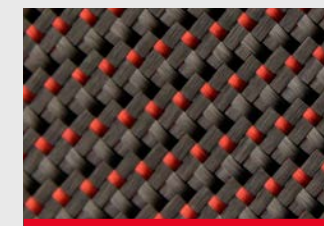
- FAST PROCESSING CYCLES
- EXTENDED SHELF LIFE
- ENVIRONMENTALLY FRIENDLY: RECYCLABLE



eDesign

Our premium brand of customized fabrics for special decorative applications in the composite world. With eDesign we enable our customers to source unique fabric designs. The (often) exclusive designs allow our customers to distinguish themselves from the mainstream offerings found in the market.

- TAILORMADE SOLUTIONS
- WIDE ARRAY OF MATERIAL COMBINATIONS
- AVAILABLE IN SMALL VOLUMES



"Discuss with us your design challenge and let us help develop a solution that fits your needs. With seven advanced material substrate portfolios including eFinish (fabric stabilization) and ePreg (thermoplastic prepregs) we can meet your composite materials needs."

"Our GOAL is to work at the forefront of technical innovation with our partners"

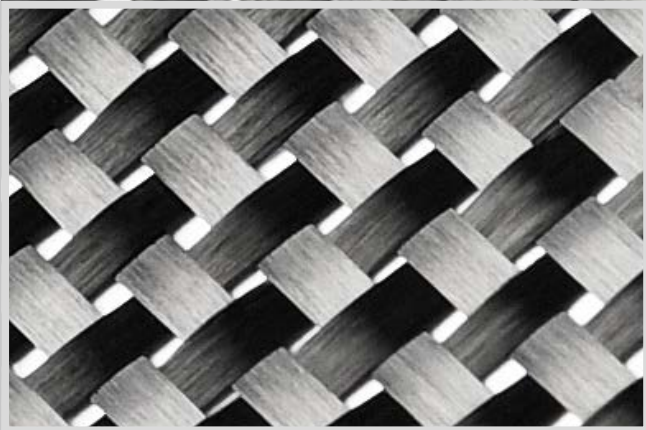
– Your ECC team

HT types

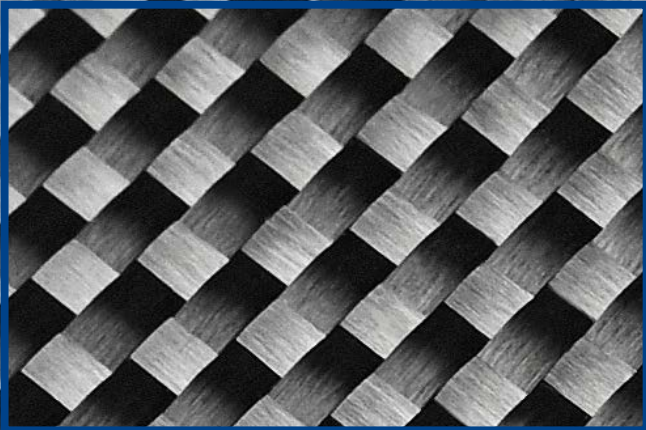
Style	Weight [g/m²]	Weave	Linear density warp & weft [tex]	Setting		Thickness [mm]
				warp [threads/cm]	weft [threads/cm]	
e458	55	plain	67	4	4	0,11
e456	64	plain	67	4,7	4,7	0,10
e493	68	plain	67	5	5	0,11
e461	80	plain	67	6	6	0,13
e469	93	plain	67	7	7	0,15
e442	160	2/2 twill	200	4	4	0,25
e447	160	plain	200	4	4	0,24
e450	200	plain	200	5	5	0,30
e452	200	2/2 twill	200	5	5	0,35
e462	245	2/2 twill	200	6,1	6,1	0,40
e460	245	plain	200	6,1	6,1	0,34
e428	285	2/2 twill	400	3,5	3,5	0,44
e474	285	4/4 twill	200	7	7	0,54
e475	285	5HS	200	7	7	0,53
e476	290	5HS	200	7,4	7,2	0,53
e418	350	2/2 twill	400	4,4	4,3	0,45
e482	385	2/2 twill	800	2,4	2,4	0,62
e426	400	2/2 twill	800	2,5	2,5	0,66
e427	400	plain	800	2,5	2,5	0,57

DETAILS of improvement

Years of experience allowed us to improve the surface properties of our fabrics in terms of quality, surface coverage and reduced thickness:



Standard fabric style 447
• 91% surface coverage
• Thickness 0,30 mm



ECellent® fabric e447
• >99% surface coverage
• Thickness 0,24 mm

HT types

Style	Weight [g/m²]	Weave	Linear density warp & weft [tex]	Thickness [mm]
eSpread200CHT-PW	200	plain	800	0,27
eSpread200CHT-2/2TW	200	2/2 twill	800	0,27
eSpread220CHT-PW	220	plain	800	0,31
eSpread245CHT-2/2TW	245	2/2 twill	800	0,36
eSpread275CHT-PW	275	plain	800	0,48
eSpread275CHT-2/2TW	275	2/2 twill	800	0,40
eSpread275CHT-5HS	275	5HS	800	0,41

IM types

eSpread285CIM-2/2TW	285	2/2 twill	830	0,50
eSpread285CIM-5HS	285	5HS	830	0,51

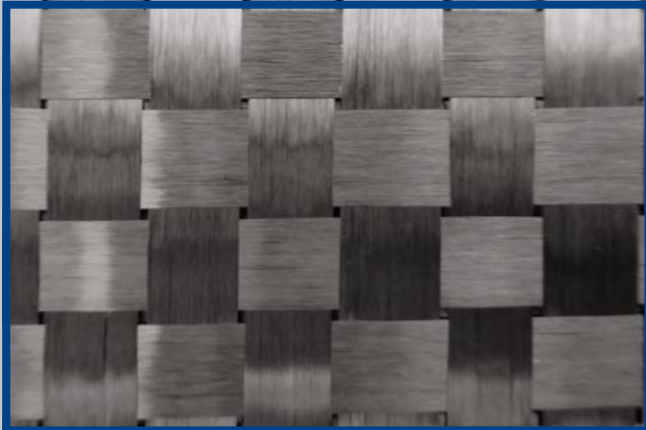
INFO

- Materials: carbon 12K or 24K fibers according to DIN 65184, class F
- Fabrics available with stabilization (powder, fleece) upon request
- Less crimp, increased smoothness, superb surface coverage

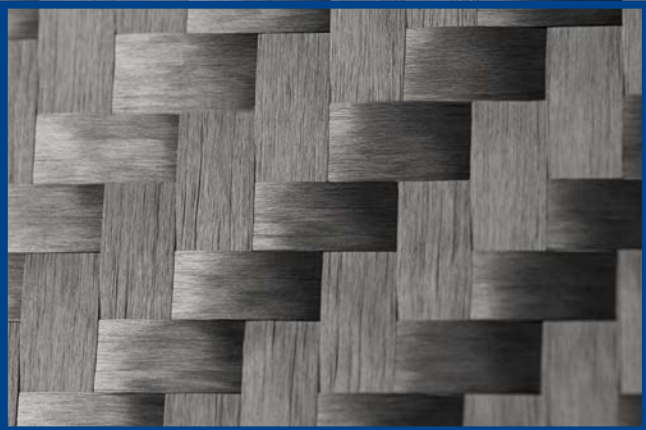
eSpread200CHT-PW

Type material
Weight in gsm
Fiber type (e.g. standard modulus)
Weave pattern

DETAILS



eSpread220CHT-PW
• >95% surface coverage
• Thickness 0,31 mm



eSpread275CHT-2/2TW
• >99% surface coverage
• Thickness 0,40 mm



HT types

Style	Weight [g/m²]	Stabilization	Linear density		Thickness [mm]
			0° [tex]	90° [tex]	
eUD134CHT-H	134	hotmelt	800	20	0,26
eUD140CHT-G	140	glass	200	34	0,23
eUD150CHT-H	150	hotmelt	800	20	0,24
eUD160CHT-G	160	glass	200	11	0,18
eUD200CHT-H	200	hotmelt	800	20	0,32
eUD268CHT-H	268	hotmelt	800	20	0,42
eUD270CHT-H	270	hotmelt	1600	20	0,45
eUD270CHT-G	270	glass	400	34	0,43
eUD320CHT-A	320	glass	800 / 34	34	0,37
eUD400CHT-H	400	hotmelt	1600	20	0,68

IM types

eUD194CIM-H	194	hotmelt	830	20	0,27
eUD268CIM-H	268	hotmelt	830	20	0,38

HM types

eUD130CHM-H	130	hotmelt	600	20	0,24
eUD260CHM-H	260	hotmelt	600	20	0,37

INFO

- Materials: carbon fibers according DIN 65184, class F,I,J,P,Q
- Width tape 1.27 m (50"), but upon request smaller widths available
- The carbon fiber is fixed with a stabilization yarn (see below illustration). Unlike with spray or grid adhesives our stabilizers keep the percentage content of foreign material to an absolute minimum.

eUD200CHT-H

Type material
Weight in gsm
Fiber type (e.g. standard modulus)
Stabilization (H=Hotmelt/G=Glass/A=AUW-Glass)

EXAMPLES of stabilization options



Hot Melt



Glass



AUW-Weave with glass



NCF-Biaxial

Style	Weight [g/m²]	Weight per layer [g/m²]	Fiber orientation		Thickness [mm]
eMax110CHT-45C	110	55	+45°	-45°	0,36
eMax150CHT-45C	150	75	+45°	-45°	0,42
eMax200CHT-45C	200	100	+45°	-45°	0,49
eMax300CHT-45C	300	150	+45°	-45°	0,58
eMax300CHT-90T	300	150	90°	0°	0,58
eMax400CHT-45C	400	200	+45°	-45°	0,75
eMax400CHT-90T	400	200	90°	0°	0,81
eMax600CHT-45C	600	300	+45°	-45°	1,05
eMax600CHT-90T	600	300	90°	0°	1,05

NCF-Triaxial

eMax450CHT-450C	450	150	+45°	-45°	0°	0,82
eMax600CHT-600C	600	200	+45°	-45°	0°	1,07
eMax800CHT-454C	800	200 + 400 + 200	+45°	-45°	+45°	1,20
eMax870CHT-405T	870	300 + 270 + 300	+45°	0°	-45°	1,20

NCF-Quadraxial

eMax1017CHT-4960S	1022	255	-45°	90°	+45°	0°	1,63
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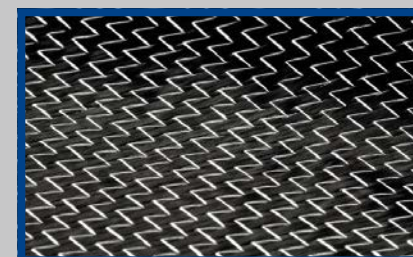
INFO

- Materials: carbon fibres according DIN 65184
- Fixed material width of maximum 1.27 m (50"), but on request smaller widths are available
- Individual fiber orientation available between -30° and +30°

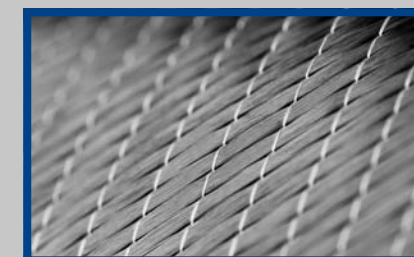
eMax200CHT-45C

Type material
Weight in gsm
Fiber type (e.g. standard modulus)
Fiber Orientation
Stitch type (C=Chaine/T=Tricot/S=Tricot-Chaine)

EXAMPLES of available stitch types (top side)



Tricot



Chaine



Tricot-Chaine

STANDARD CARBON FABRICS

HT types

Style	Weight [g/m²]	Weave	Linear density warp & weft [tex]	Setting		Thickness [mm]	German Standard DIN	Quality	
				warp [threads/cm]	weft [threads/cm]			Aero	Industry
493	68	plain	67	5	5	0,13			x
461	80	plain	67	6	6	0,15			x
469	93	plain	67	7	7	0,15	8.3505	x	x
490	120	plain	67	9	9	0,17			x
495	120	5HS	67	9	9	0,17			x
412	150	2/2 twill	67	12	10	0,21			x
442	160	2/2 twill	200	4	4	0,39		x	x
447	160	plain	200	4	4	0,30	8.3508	x	x
449	193	plain	200	4,9	4,8	0,30	8.3515	x	x
481	193	2/2 twill	200	4,9	4,8	0,30		x	x
450	200	plain	200	5	5	0,33	8.3509	x	x
452	200	2/2 twill	200	5	5	0,38	8.3520	x	x
457	217	3/1 twill	200	5,2	5,2	0,32		x	
459*	220	2/2 twill	200/23	10	10	0,40		x	
462	245	2/2 twill	200	6	6	0,41	8.3522	x	x
460	245	plain	200	6,1	6,1	0,34			x
428	285	2/2 twill	400	3,5	3,5	0,52			x
470	285	plain	200	7	7	0,50			x
474	285	4/4 twill	200	7	7	0,54			x
475	285	5HS	200	7	7	0,53	8.3525	x	x
476	290	5HS	200	7,4	7,2	0,53			x
430	300	plain	400	3,7	3,7	0,49			x
418	350	2/2 twill	400	4,4	4,3	0,54			x
445	365	5HS	400	4,5	4,5	0,58			x
437	370	5HS	800	2,3	2,3	0,61			x
439	370	5HS	400	4,7	4,5	0,73	8.3541	x	
498	370	8HS	200	9,5	9	0,68	8.3540	x	x
405	375	plain	800	2,3	2,3	0,73			x
482	385	2/2 twill	800	2,4	2,4	0,76			x
402	400	2/2 twill	400	5	5	0,63			x
426	400	2/2 twill	800	2,5	2,5	0,76			x
427	400	plain	800	2,5	2,5	0,75			x
404	600	2/2 twill	800	3,7	3,7	0,95			x
432	630	2/2 twill	800	3,9	3,9	0,96			x
422	645	plain	1600	2	2	1,10			x
411	645	2/2 twill	1600	2	2	1,10			x
424	660	2/2 twill	800	4,1	4,1	0,93			x
434	680	basket 2/2	800	4,2	4,2	0,96			x

• Materials: Carbon fibres according DIN 65184, class F * ("Lightning strike fabric")

HM types

Style	Weight [g/m²]	Weave	Linear density warp & weft [tex]	Setting		Thickness [mm]
				warp [threads/cm]	weft [threads/cm]	
887	205	2/2 twill	225	4,5	4,5	0,36
892	200	2/2 twill	223	4,4	4,4	0,36
895	285	5HS	223	6,2	6,2	0,44

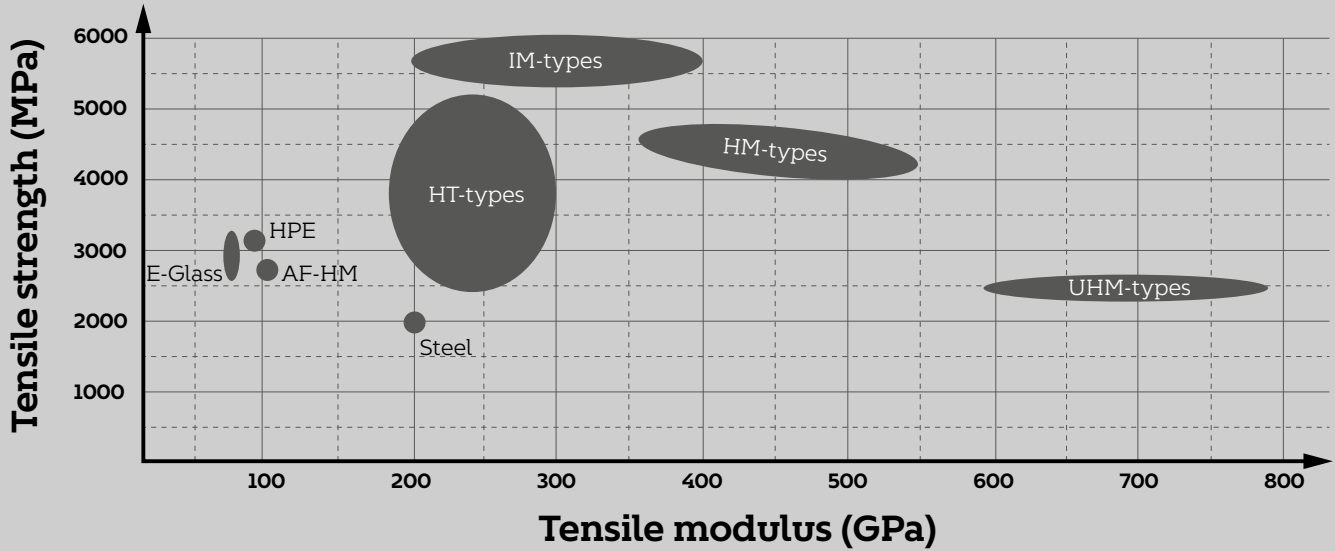
• Materials: Carbon fibres according DIN 65184, class I,P,Q

IM types

852	200	2/2 twill	223	4,5	4,5	0,40
856	200	plain	223	4,5	4,5	0,35
840	270	plain	223	6,0	6,0	0,40
842	270	2/2 twill	223	6,0	6,0	0,46
848	385	plain	830	2,3	2,3	0,71

• Materials: Carbon fibres according DIN 65184, class J

TENSILE PROPERTIES of PAN- and pitch-based carbon fibers



HT = High Tenacity; IM = Intermediate Modulus; HM = High Modulus; UHM = Ultra High Modulus



Stabilized Carbon Fabrics

Style	Weight [g/m²]	Stabilization	Form	Polymer Weight [g/m²]	Finished Weight [g/m²]
469	93	epoxy	powder	9	102
447	160	epoxy	powder	13	173
452	200	polyester	powder	13	213
462	245	epoxy	powder	13	258
482	385	epoxy	powder	13	398
402	400	polyester	fleece	35	435

INFO

- The above list is not exhaustive and we can apply the above binders in customized weight ranges to a large number of our reinforcement fabrics.
- EP-Powder is available in the following softening ranges: 90-100C°, 100-110C°, 130-150C°

CHARACTERISTICS



Perfect stabilization



Ideal for preforming



Easy cutting



Controlled stamping



Dry Prepregs

Style	Fiber Areal Weight [g/m²]	Prepreg Areal Weight [g/m²]	Resin Content %	Fiber Volume %	Weave	Linear density warp & weft [tex]	Coated Thickness [mm]	Consolidated Thickness [mm]	Polymer
ePreg193CHT/PEEK41	193	328	41	52	plain	200	0,66	0,211	PEEK
ePreg200CHT/PEEK42	200	345	42	51	2/2 twill	200	0,68	0,223	PEEK
ePreg285CHT/PEEK42	285	491	42	51	5HS	200	1,2	0,318	PEEK
ePreg275CHT/PEEK41	275	466	41	52	2/2 twill	800	1	0,3	PEEK
ePreg193CHT/PEKK41	193	328	41	51	plain	200	0,65	0,213	PEKK
ePreg285CHT/PEKK41	285	483	41	51	5HS	200	1,15	0,315	PEKK
ePreg275CHT/PEKK41	275	466	41	51	2/2 twill	800	1	0,3	PEKK
ePreg275CHT/PPS42	275	474	42	51	2/2 twill	800	1	0,3	PPS
ePreg245CHT/PC40	245	408	40	53	2/2 twill	200	0,82	0,264	PC
ePreg285CHT/PC40	285	475	40	53	5HS	200	1,06	0,307	PC
ePreg285CHT/PA42	285	483	42	44	5HS	200	1,1	0,366	PA12
ePreg245CHT/PP40	245	408	40	45	2/2 twill	200	1,08	0,309	PP

INFO

- Standard width 127 cm (50"), but upon request smaller widths are available
- Other material combinations like glass with PEEK are available upon request.
- Pressed panels available upon request

ePreg285CHT/PEEK41

Type material
Weight in gsm
Fiber type (e.g. standard modulus)
Polymer
Resin content

CHARACTERISTICS



Re-Use/
Recycling possible



Short
processing time



Room
temperature storage



Long term
storage possible



No transportation
restrictions



Not
REACH critical



Process
flexibility

ARAMID FABRICS

HM types

Style	Weight [g/m²]	Weave	Linear density		Setting		Thickness [mm]	German Standard DIN
			warp [tex]	weft [tex]	warp [threads/cm]	weft [threads/cm]		
240	36	plain	22	22	8	8	0,08	
120	61	plain	22	22	13,5	13,5	0,13	5.2230
220	75	plain	42	42	8,7	8,7	0,16	
140	110	2/2 twill	42	42	13	13	0,21	5.2231
145	115	plain	42	42	13,4	13,4	0,21	
161	120	plain	127	22	8	6	0,21	
160	158	plain	158	22	9	5,5	0,3	5.2232
344	160	mock leno	158	158	5	5	0,7	
500	160	plain	158	158	5	5	0,33	
502	160	2/2 twill	158	158	5	5	0,36	
181	170	8HS	42	42	19	19	0,31	5.2233
281	170	plain	127	127	6,5	6,5	0,36	5.2234
284	170	2/2 twill	127	127	6,5	6,5	0,37	5.2237
285	170	4HS	127	127	6,5	6,5	0,39	5.2236
332	195	2/2 twill	158	158	6	6	0,41	
328	230	plain	158	158	7	7	0,4	
333	230	2/2 twill	158	158	7	7	0,45	5.2235
335	230	4HS	158	158	7	7	0,48	
900	335	5HS	240	240	6,8	6,8	0,69	
1350	470	basket 4/4	240	240	10,5	8,5	0,87	
1355	470	2/2 twill	316	316	8	6,5	0,97	
1356	470	basket 3/3	316	316	8	6,5	0,95	

- The weight stated is usually related to the scoured fabric
- Materials: Aramid fibres according DIN 65356, part 1, class B

HYBRID FABRICS

Carbon-Aramid

Style	Weight [g/m²]	Weave	Shares		Linear density		Setting		Thickness [mm]
			CF	AF	warp [tex]	weft [tex]	warp [threads/cm]	weft [threads/cm]	
624	65	plain	73%	27%	67	22	7	8	0,11
664	71	plain	61%	39%	67/42	67/42	6,5	6,5	0,15
648	100	plain	29%	71%	42/67	42/67	10	10	0,16
638	110	plain	84%	16%	42/67	42/67	9	9	0,17
642	150	plain	60%	40%	127/200	127/200	4,5	4,5	0,27
630	165	plain	58%	42%	158/200	158/200	5	4	0,36
666	175	plain	59%	41%	127/200	127/200	5	5,5	0,36
636	180	plain	55%	45%	158/200	158/200	5	5	0,36
601	205	2/2 twill	61%	39%	127/200	127/200	6	6	0,36
635	210	3/1 twill	61%	39%	127/200	127/200	6,5	6	0,46
633	240	2/2 twill	39%	61%	158/200	158/200	6,7	6,7	0,42
639-1	280	2/2 twill	55%	45%	158/200	158/200	7,6	7,6	0,45

- Materials: Carbon fibres according DIN 65184, class F. Aramid fibres according DIN 65356, part 1, class B

Carbon-Glass

Style	Weight [g/m²]	Weave	Shares		Linear density		Setting		Thickness [mm]
			CF	GF	warp [tex]	weft [tex]	warp [threads/cm]	weft [threads/cm]	
761	170	plain	72%	29%	200	68	6	7	0,25
752	175	plain	33%	67%	200/136	200/136	5,6	5,6	0,25
735	780	basket 2/2	21%	79 %	1200/800	1200/800	3,5	3,5	0,84

- Materials: Carbon fibres according DIN 65184, part 1, class F. Glass fibres according DIN 60850

Carbon-Polyethylene

Style	Weight [g/m²]	Weave	Shares		Linear density		Setting		Thickness [mm]
			CF	PE	warp [tex]	weft [tex]	warp [threads/cm]	weft [threads/cm]	
688	190	2/2 twill	47%	53%	200/176	200/176	5	5	0,47
681-1	210	plain	44%	56%	200/150	200/150	6,2	5,9	0,50
689	235	2/2 twill	69%	31%	200/176	200/176	6	6	0,50
685	295	2/2 twill	82%	18%	400/88	400/88	6	6	0,60

- Materials: Carbon fibres + UHMW-PE fibres **Dyneema®**
- Other hybrid fabrics like PE/GF, PE/AF are available upon request



POLYETHYLENE FABRICS

HT types

Style	Weight [g/m²]	Weave	Linear density warp & weft [tex]	Setting		Thickness [mm]
				warp [threads/cm]	weft [threads/cm]	
357	35	plain	16,5	10	10	0,16
397	64	plain	22	16	11	0,20
354	130	plain	88	8	6	0,42
352	160	2/2 twill	44	18	18	0,33
359	160	2/2 twill	88	9	9	0,45
351-1	180	4HS	150	6	6	0,54

• Materials: UHMW-PE [Dyneema®](#) fibres



POLYESTER FABRICS

HT types

Style	Weight [g/m²]	Weave	Linear density warp & weft [tex]	Setting		Thickness [mm]
				warp [threads/cm]	weft [threads/cm]	
14 K	158	plain	110	7	7	0,25
26 K	265	plain	330	3,9	3,9	0,43
Diolen-Gewebe	265	basket 2/2	110	12	11,5	0,42
25 K	520	special	330	7,8	7,8	1,14
24 K	850	special	330	12	12	1,69

Transport, Lagerung und Verarbeitung von trockenen Verstärkungsgeweben auf Basis von Aramid-, Carbon- und Hybrid-Geweben

1 Transport und Lagerung

Die Kartons sind liegend zu transportieren und zu lagern. Stauchen und Druckeinwirkungen von außen sind zu vermeiden. Lagerung in geschlossenen, trockenen und temperierten Räumen. Aramidgewebe sind lichtgeschützt zu lagern. Temperaturen über 30°C sind wegen der Gefahr der Avivageaushärtung zu vermeiden.

2 Auspacken

Möglichst nur soviel Gewebe auspacken, wie unmittelbar zur Weiterverarbeitung benötigt wird, um Beschädigungen und Verschmutzungen zu verhindern.

3 Sauberkeit

Verunreinigungen jeglicher Art beeinflussen die Haftung negativ und sind deshalb schädlich für die Weiterverarbeitung.

4 Besondere Hinweise für Aramidgewebe

4.1 UV-Stabilität

Aramid ist UV empfindlich und sollte deshalb nicht dem Licht ausgesetzt werden. Deswegen verpacken wir die Gewebe lichtgeschützt.

4.2 Feuchtigkeit

Aramid nimmt bis zu 7% Feuchtigkeit auf, deshalb ist eine trockene Lagerung wichtig. Je nach Anwendung ist es empfehlenswert, die Gewebe vor der Verarbeitung zu trocknen (z.B.: 16 h 120°C. danach schnelle Verarbeitung bei Epoxidharz).

4.3 Sicherheits- und Gesundheitshinweise

Basis für die aromatischen Polyamide (Aramide) sind poly-paraphenylene Terephtalamide. Der Einzelfilamentdurchmesser beträgt 12µ. Kritische Kleinstpartikel spalten sich selten ab.

In einigen Fällen kann es zu meist kurzzeitigen Hautreizungen kommen. In diesen Fällen ist das Tragen von Handschuhen und geschlossenen Arbeitsanzügen angebracht.

Arbeitsräume und Maschinen sind, um Staubansammlungen zu vermeiden, regelmäßig zu reinigen. Dies gilt auch für das Waschen der Arbeitskleidung. Die allgemeinen Regeln der Hygiene, wie das Waschen der Hände vor dem Einnehmen der Mahlzeiten, sind zu beachten.

4.4 Brandverhalten

Aramid ist ein organisches Material und besteht aus Kohlenstoff, Wasserstoff, Sauerstoff und Stickstoff. Bei Bränden verhält es sich wie andere organische Materialien aus diesen 4 Elementen. Aramide explodieren nicht, sie sind nicht wasserlöslich und nicht radioaktiv.

5 Besondere Hinweise für Kohlenstoffgewebe

5.1 Elektrische Leitfähigkeit

Aufgrund der guten Leitfähigkeit ist die Einwirkung auf elektrischen Anlagen zu vermeiden. Schutzart IP60 (DIN EN 60529).

5.2 Hautreizungen

Bei Einwirkung auf die Haut kann eine Reizung erfolgen. Aus Vorsorge ist geeignete geschlossene Schutzkleidung zu tragen bzw. sind Handschuhe zu tragen.

5.3 Feinstäube

Abrieb in Form atembarer Feinstäube hat keine faserförmige Struktur und ist daher als Inertstaub einzustufen. Ein Einatmen sollte durch geeignete Absaugungen ausgeschlossen werden.

Für spezielle Fragen steht Ihnen unser Kundenservice gerne zur Verfügung.

Transportation, storage and processing of dry fabrics for composites made of Aramid, Carbon and Hybrid fabrics

1 Transportation and storage

The cartons are to be transported and stored in a horizontal position. Do not jolt them and avoid pressure from outside. Store the fabrics in closed and dry rooms with moderate temperature. Aramid fabrics should be protected against light during storage. Temperatures above 30°C should be avoided otherwise the finish might be hardened.

2 Unpacking

Only the amount of fabric should be unpacked as is necessary for further processing, in order to prevent damage and dirt.

3 Cleanliness

Dirt of any kind affects the adhesion and is therefore harmful for the application.

4 Special instructions for Aramid fabrics

4.1 UV stability

Aramid is UV-sensitive and should therefore not be exposed to the light. The properties will be affected by ultraviolet light. This is the reason for wrapping the fabrics protected from light.

4.2 Humidity

Aramid absorbs up to 7% humidity which makes a dry storage necessary. It is recommended – according to the application – to dry the fabrics before the processing (for example 16 h 120°C, then to be processed immediately).

4.3 Instructions for safety and health

Polyparaphenylene terephtalamides are the basic for aromatic polyamides (aramides). The diameter of the single filament is 12µ. Small particles rarely split.

In some cases skin-irritations might occur, however, mostly for a short time. In these cases, it may be advisable to wear gloves and closed overalls.

Work-rooms and machines should be cleaned regularly, in order to avoid dust accumulation. The same care should be taken with work-clothes. The general rules of hygiene like washing one's hand before having a meal are to be observed.

4.4 Behaviour towards fire

Aramid is an organic material and consists of carbon, hydrogen, oxygen and nitrogen. In case of fire, it reacts like other organic material consisting of these 4 elements. Aramids do not explode, are not water soluble and not radio-active.

5 Special instructions for Carbon-fibre fabrics

5.1 Conductivity

Because of the good conductivity, contact with electrical installations should be avoided. Type of protection IP60 (DIN EN 60529).

5.2 Skin-irritation

If the skin is contacted an irritation may occur. As a precaution, protective clothing including gloves should be worn.

5.3 Fine dust

Fine dust caused by wear, which can be inhaled, has no fibrous structure and is therefore to be classified as inert dust. Breathing in the dust should be avoided by a suitable exhausting device.

For further details according to the present level please contact our customer service.



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