



# CARBON FIBER FABRICS



FORMOSA TAFFETA CO., LTD.



# 福懋興業股份有限公司簡介

福懋興業股份有限公司於1973年設立於台灣。福懋公司為台塑之關係企業，長期以來”織布”一直是福懋之本業與專業項目，從雨傘布，各式功能性衣著用布到輪胎簾布與防彈、防火之生命安全用布，福懋本著“品質至上”與“服務客戶”之經營理念，不但受到國內外業界之肯定，更始終能在同業中取得領導之地位。今天福懋在專業領域上已經是Nike、Adidas與Dupont等知名公司的生意夥伴。

FORMOSA TAFFETA CO., LTD. (FTC) was founded in 1973 Taiwan. It is a member of the Formosa Plastic Group. FTC involves the textile product manufacturing and has been an expert in weaving umbrella fabric, high technology performance clothing fabric, tyre cord and the life protective fabric of bullet and fire. FTC also becomes the leader in the textile weaving field as continuously sets up the advanced machinery and is reputed as "best quality" and "customer first". Now FTC is an important partner with the Nike, Adidas and Dupont for the international business.

## 一、纖維特性

1. 碳纖維：◎纖維密度1.80 g/cm<sup>3</sup> ◎樹脂結合性佳 ◎比強度高 ◎比剛性高  
◎良好之導電性與導熱性 ◎具電磁波屏蔽與X射線穿透性
2. 玻璃纖維：◎纖維密度2.54 g/cm<sup>3</sup> ◎價格便宜 ◎耐衝擊性佳 ◎電器絕緣性佳
3. 克維拉纖維：◎避震性佳 ◎耐衝擊性佳 ◎輕而強韌 ◎密度1.44 g/cm<sup>3</sup>

## 二、碳纖維與混成織物之應用

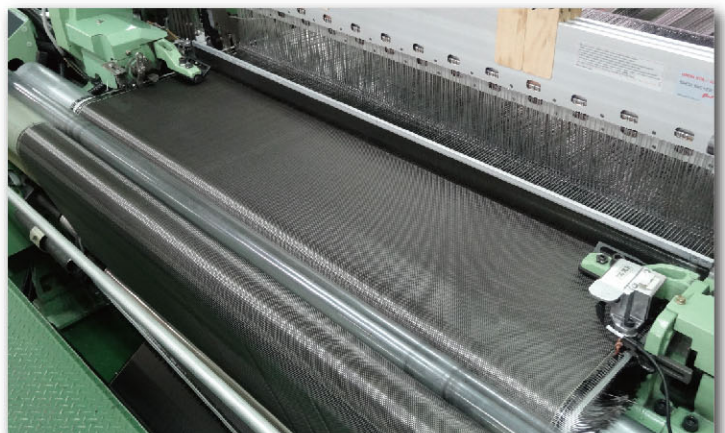
1. 工業用途：機械手臂及機件、樑柱補強、風力葉片、醫療器材、汽車與高速車體等。
2. 船舶遊艇：船舶遊艇之船體及結構、遊艇內裝、儀表板等。
3. 3C產品：Note-book與手機之機殼。
4. 運動休閒產業：自行車、運動鞋、曲棍球桿與滑雪器具等。

### 1. The fiber specification

1. The fiber specification 1. Carbon fiber : density 1.80g/cm<sup>3</sup>, good adhesion with resin, higher specific strength, higher specific modulus, good heat and electric conductive, electromagnetic interference(EMI), and the penetration of X-ray.
2. Fiberglass: density 2.54g/cm<sup>3</sup>, cheaper, high impact, and electric insulation.
3. Kevlar: good vibration damping, high impact, tough and low density (1.44g/cm<sup>3</sup>).

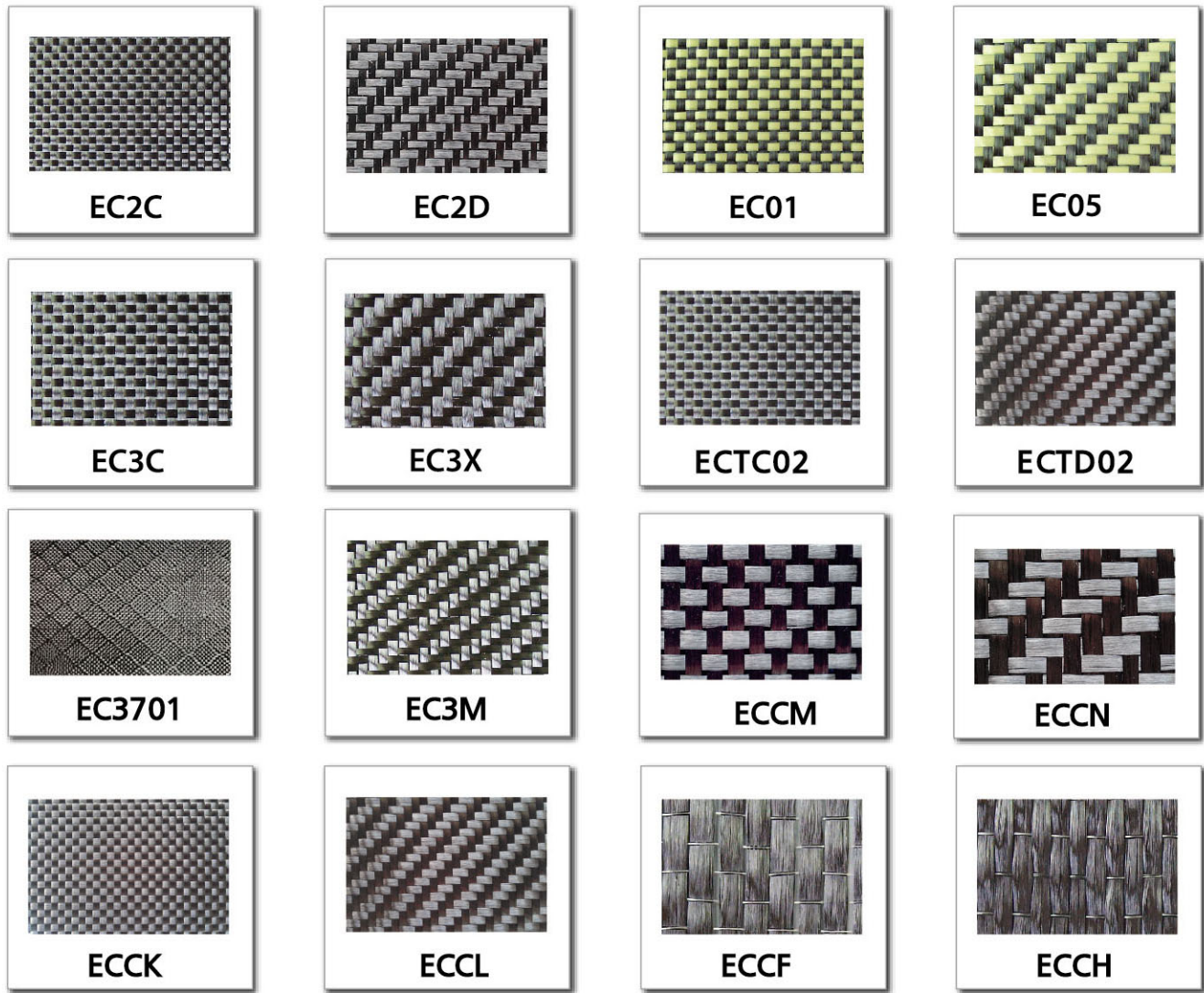
### 2. The application of carbon fabric

1. Industry: Robot parts, civil reinforce, wind blade, Medical bed and the body of high-speed train
2. Ship: Hull structure, Ship parts, Yacht.
3. 3C products: Note book and mobile phone case.
4. Sporting goods: Bicycle parts, shoes, hockey, and skating parts.





## 2D WOVEN



Product NO.	Warp Ends	Fill Picks	Warp Yarn		Fill Yarn		Weave	Width (cm)	Thickness (mm)	Weight (g/m <sup>2</sup> )
EC2C	18	18	1.5K	carbon	1.5K	carbon	1/1 Plain	100	0.19	144.0
EC2D	18	18	1.5K	carbon	1.5K	carbon	2/2 Twill	100	0.19	144.0
EC01	13	13	3K	carbon	1500D	Kevlar(Y)	1/1 Plain	100	0.27	190.8
EC05	13	13	3K	carbon	1500D	Kevlar(Y)	2/2 Twill	100	0.28	190.8
EC3C	12.5	12.5	3K	carbon	3K	carbon	1/1 Plain	100	0.24	200.0
EC3X	13	13	3K	carbon	3K	carbon	2/2 Twill	100	0.25	208.0
ECTC02	12.5	12.5	3K	carbon	3K	carbon	1/1 Plain	100	0.33	200.0
ECTD02	12.5	12.5	3K	carbon	3K	carbon	2/2 Twill	100	0.33	200.0
EC3701	12.5	12.5	3K	carbon	3K	carbon	Diamond	100	0.28	200.0
EC3M	13	18	3K	carbon	3K	carbon	2/2 Twill	100	0.30	248.0
ECCM	6.25	6.25	12K	carbon	12K	carbon	1/1 Plain	100	0.52	400.0
ECCN	6.25	6.25	12K	carbon	12K	carbon	2/2 Twill	100	0.575	400.0
ECCK	9.375	9.375	12K	carbon	12K	carbon	1/1 Plain	100	0.65	600.0
ECCL	9.375	9.375	12K	carbon	12K	carbon	2/2 Twill	100	0.70	600.0
ECCF	6.5	4.5	12K	carbon	55tex	glass	1/1 Plain	50	0.28	217.9
ECCH	9.5	4.5	12K	carbon	55tex	glass	1/1 Plain	50	0.38	313.9

\* 其他規格可依客戶需求製作。(Specifications can be customized base on request.)

## FTC Carbon Fiber Fabric Specification of Construction Reinforcement and Seismic Retrofit

Uni-directional Fabric	Area Weight (g/m <sup>2</sup> )	Width (cm)	Carbon Fiber Type	Packing (m/roll)	Design Thickness(cm)
ECCF	200	50	TC-36P-12K	100	0.0111
ECCH	300	50	TC-36P-12K	100	0.0166

### The Property of TAIRYFIL TC-36P-12K Carbon Fiber

Item	Tensile Strength		Tensile Modulus		Elongation	Density
	MPa	kgf/cm <sup>2</sup>	GPa	kgf/cm <sup>2</sup>		
Unit	MPa	kgf/cm <sup>2</sup>	GPa	kgf/cm <sup>2</sup>	%	g/cm <sup>3</sup>
Property	4900	4.99×10 <sup>4</sup>	250	2.55×10 <sup>6</sup>	2.0	1.80

## PREPREG



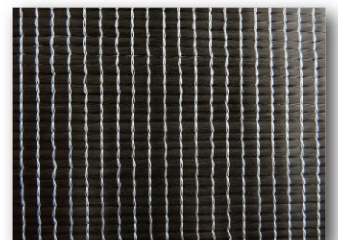
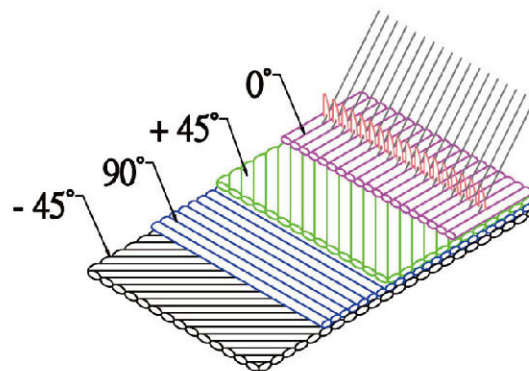
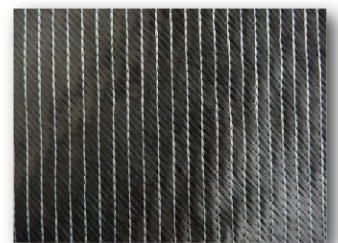
Product	Weight (g/m <sup>2</sup> )	RC%	Tg °C	Carbon Yarn	Width (cm)
UD	75	30~40	120~250	12K	100
	100	30~40	120~250	12K	100
	125	30~40	120~250	12K	100
	150	30~40	120~250	12K	100
	200	30~40	120~250	12K/24K	100
	250	30~40	120~250	24K	100

Fiber Type	Number of Filament	Yield Tex (g/1000m)	Tensile Strength	Tensile Modulus	Elongation (%)	Density (g/cm <sup>3</sup> )
			MPa	GPa		
TC-36P 12K	12,000	800	4900	250	2.0	1.80
TC-42S 12K	12,000	440	5690	290	2.0	1.81
TC-42S 24K	24,000	800	5690	290	2.0	1.81
T700SC 12K	12,000	800	4900	230	2.1	1.80
T700SC 24K	24,000	1650	4900	230	2.1	1.80

\* 其他規格可依客戶需求製作。(Specifications can be customized base on request.)



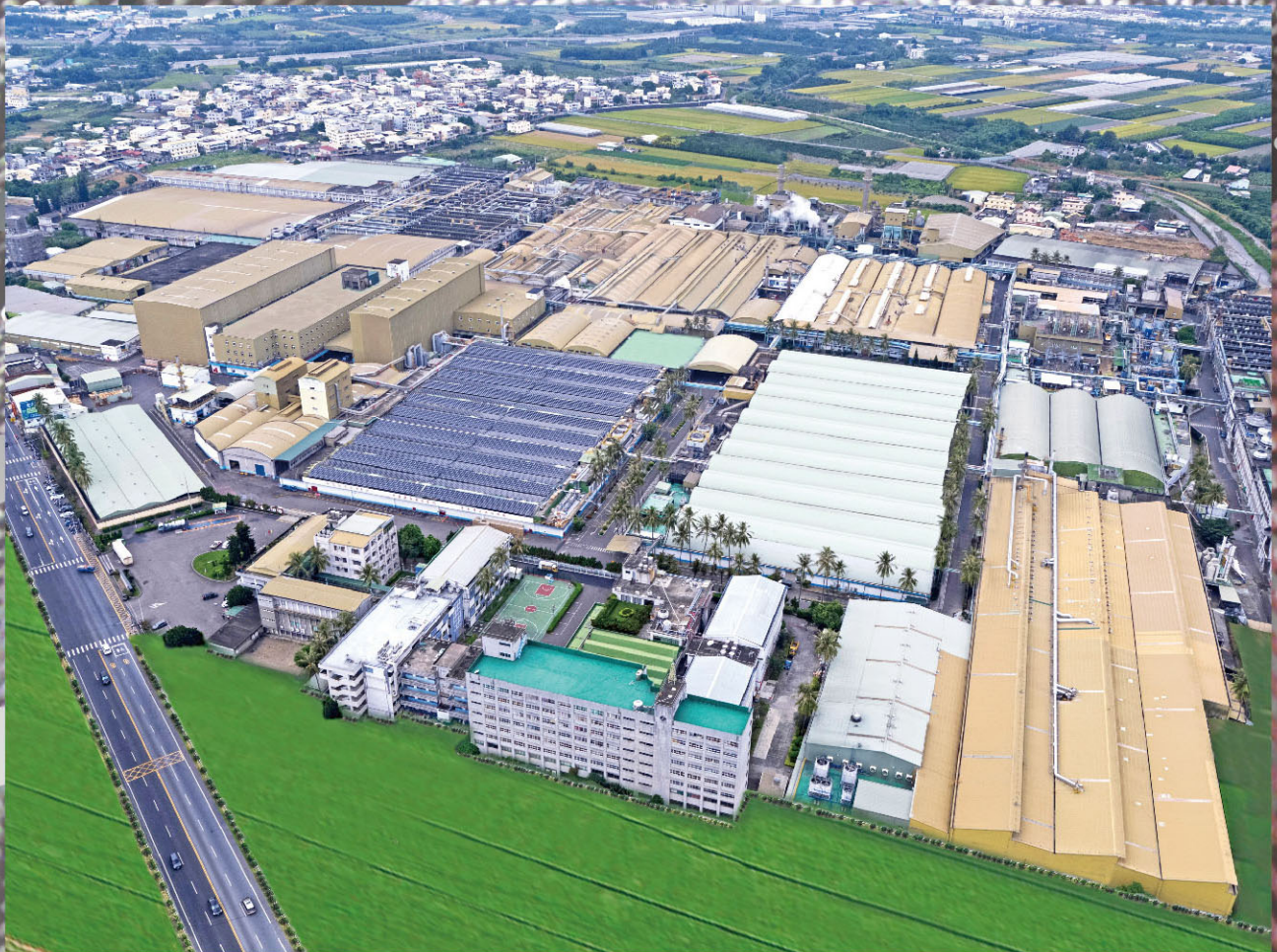
# Multiaxial



Product No.	Fiber Orientation	Fiber Weight Per Layer (g/m <sup>2</sup> )	Total Weight (g/m <sup>2</sup> )	Width (cm)	Roll Length (m)
ECMT01	+45° / -45°	75	157	127	50
ECMT03	+45° / 90° / -45°	75	232	127	50
ECMT06	+45° / -45°	100	207	127	50
ECMT08	+45° / 90° / -45°	100	307	127	50
ECMT11	+45° / -45°	125	257	127	50
ECMT13	+45° / 90° / -45°	125	382	127	50
ECMT16	+45° / -45°	150	307	127	50
ECMT18	+45° / 90° / -45°	150	457	127	50
ECMT21	+45° / -45°	200	407	127	50
ECMT22	0° / 90°	200	407	127	50
ECMF23	+45° / 90° / -45°	200	607	127	30
ECMF24	0° / +45° / -45°	200	607	127	30
ECMF25	0° / +45° / 90° / -45°	200	807	127	30
ECMF36	+45° / -45°	300	607	127	30
ECMF38	+45° / 90° / -45°	300	907	127	30

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