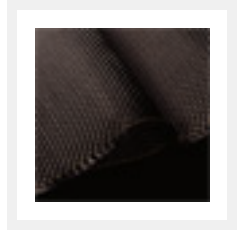


# Torayca™ Fabric

Torayca™ fabric is a textile using carbon fiber. Shaped like sheet, this fabric has excellent processability and easy to impregnate resin.

Torayca™ fabric is used in reinforcement materials for civil engineering/construction, sporting applications such as bicycles, and aircraft members, and its applications are expanding further. As the world's number-one fiber manufacturer, Toray is actively growing textile business.



## 1. Physical Property Table of Torayca™ Fabric

Product No	Type	Warp	Weft	Warp density (pc(s)/25 mm)	Weft density (pc(s)/25 mm)	Weave structure	Width (cm)	Thickness (mm)	Textile weight (g/m <sup>2</sup> )
CO6142	Carbon	T300-1000	T300-1000	22.5	22.5	Plain	100	0.15	119
CO6151B	Carbon	T300B-1000	T300B-1000	17.4	17.4	Plain	100	0.11	92
CO6343	Carbon	T300-3000	T300-3000	12.5	12.5	Plain	100	0.25	198
CO6343B	Carbon	T300B-3000	T300B-3000	12.5	12.5	Plain	100	0.23	198
CO6347B	Carbon	T300B-3000	T300B-3000	12.5	12.5	2/2 twill	100	0.22	198
CO6644B	Carbon	T300B-6000	T300B-6000	10	10	Plain	100	0.3	317
CO1302	Carbon/Glass Hybrid	T300-3000 Glass yarn	Glass yarn	44 22	10	UD	2.5	0.39	397
CO1303	Carbon/Glass Hybrid	T300-3000 Glass yarn	Glass yarn	43 21.5	10	UD	5	0.35	389
CO5642	Carbon/Glass Hybrid	T300-6000 Glass fiber	T300-6000	6.25 6.25	6.25	Plain	100	0.35	342
CO7354	Carbon/Kevlar Hybrid	T300-3000 Kevlar 1420d	T300-3000 Kevlar 1420d	6.25 6.25	6.25 6.25	Plain	100	0.26	178
CO7359B	Carbon/Kevlar Hybrid	T300B-3000 Kevlar 1420d	T300B-3000 Kevlar 1420d	6.25 6.25	6.25 6.25	2/2 twill	100	0.26	178
CK6244C	Carbon	T700S-12000	T700S-12000	3.27	3.27	Plain	100	0.22	210
CK6273C	Carbon	T700S-12000	T700S-12000	3.0	3.0	Plain	96.5	0.21	192
CK6261C	Carbon	T700S-12000	T700S-12000	7.5	7.5	Plain	100	0.61	480

(\* The "thickness" values are provided for reference.)

## Physical Property Table of Civil Engineering/Construction Fabric

Product No	Type	Fiber weight (g/ m <sup>2</sup> )	Sheet thickness (mm) * 1	Density (g/ cm <sup>3</sup> )	Tensile strength		Young's modulus				Width (cm)
					(kN/ mm <sup>2</sup> )	(kgf/ cm <sup>2</sup> )	Construction <sup>2</sup>		Civil engineering <sup>3</sup>		
							(kN/ mm <sup>2</sup> )	(kgf/ cm <sup>2</sup> )	(kN/ mm <sup>2</sup> )	(kgf/ cm <sup>2</sup> )	
UT70-20G	Unidirectional High-strength cloth	200	0.111	1.80	3.4	35,000	230	2.34x1 06	245	2.5x1 06	25,33,50
UT70-30G		300	0.167	1.80	3.4	35,000	230	2.34x1 06	245	2.5x1 06	25,33,50
UT70-40G		400	0.222	1.80	3.4	35,000	230	2.34x1 06	245	2.5x1 06	25,33,50
UT70-45G		450	0.250	1.80	3.4	35,000	230	2.34x1 06	245	2.5x1 06	50
UT70-60G		600	0.333	1.80	3.4	35,000	230	2.34x1 06	245	2.5x1 06	50
UM46-30G	Unidirectional High-elasticity cloth	300	0.163	1.84	2.4	25,000	440	4.5x1 06	440	4.5x1 06	25
UM46-34G		340	0.185	1.84	2.4	25,000	-	-	440	4.5x1 06	25
UM46-40G		400	0.217	1.84	2.4	25,000	-	-	440	4.5x1 06	25
BT70-20	Bidirectional High-strength cloth	Length100 Width100	Length0.056 Width0.056	1.80	Length2.9 Width2.9	Length30,000 Width30,000	230	2.34x1 06	245	2.5x1 06	100
BT70-30		Length150 Width150	Length0.083 Width0.083	1.80	Length2.9 Width2.9	Length30,000 Width30,000	230	2.34x1 06	245	2.5x1 06	100

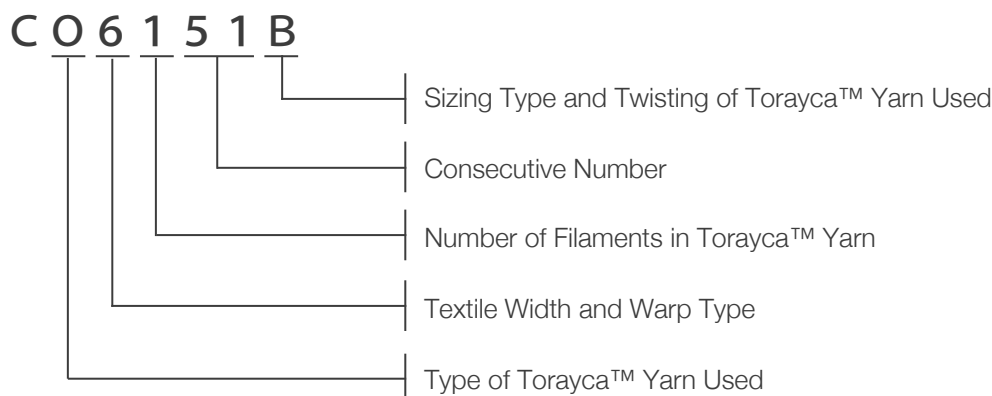
\* 1. Value set from the actual cross-section area of carbon fiber. The thickness of applied material including resin is 0.6 to 1.5 mm per layer.

\* 2. Young's modulus specified in "Design/Application Guidelines for Antiseismic Retrofitting of Existing Reinforced Concrete Structures and Steel-framed Reinforced Concrete Structures Using Continuous Fiber Reinforcement Material" by the Japan Building Disaster Prevention Association, dated September 1999.

\* 3. Young's modulus specified in "Joint Research Report on Restore/Reinforcement of Concrete Members (III) - Design/Application Guidelines on Restore/Reinforcement of Road Bridge Concrete Members by Carbon Fiber Sheet Bonding Method (Draft) -" by the Bridge Beam Research Group/Carbon Fiber Restore & Reinforcement Technology Research Group, Structural Bridge Beam Division, Civil Engineering Laboratory, Ministry of Construction, dated December 1999.

- Tensile strength represents a characteristic value of material strength, while Young's modulus represents an average.
- Special weave shifting treatment prevents the yarn from coming loose easily when cut.
- The package contains one 50-m roll.

## 2. Numbering Rules for Torayca™ Fabric Products



## 3. Standard Packing

The material is rolled around a paper tube of 76 mm in inner diameter, the roll is wrapped with kraft laminate or paper and pads are put on both ends, after which (the roll is suspended in air and) stored/packed in a carton case.

## 4. Handling Precautions for Carbon Fiber

- Carbon fiber is conductive. Implement dust-proof measures to prevent electrical equipment from shorting, malfunctioning, etc., due to fibers scattering and flying around in the work area.
- No cases of health problems due to carbon fiber have been reported, but short fibers may attach to the skin or viscous membrane to cause itchiness or inflammation. When handling carbon fiber, wear a mask, gloves and other protective equipment to prevent carbon fiber from being inhaled or attaching to the skin.
- Incinerating water material of carbon fiber or carbon fiber composite material may cause fibers to scatter and fly around and cause electrical failures. It is appropriate to bury such material as industrial waste.

## Cautions

1. This product documentation does not guarantee the result or product safety/compliance achieved by applying the information provided herein. When using the product, confirm its safety/compliance according to the purpose of use.
2. Our carbon fiber Torayca™ products or technologies relating to the design, manufacturing or use thereof may be classified as the goods specified in 1 to 15 of Appended Table 1 of the Export Trade Control Order, or as the technologies specified in 1 to 15 of Appended Table 1 of the Foreign Exchange Order, or as other goods/technologies that may be specified by the government as being subject to export control for national security reasons.

When exporting or providing to a non-resident any such Torayca™ product or any such technology relating to the design, manufacture or use of Torayca™ product, an export permission or service transaction permission must be obtained from the Minister of Economy, Trade and Industry or other necessary procedure must be taken according to the Foreign Exchange and Foreign Trade Act or other relevant law, notice, etc.

Torayca™ is a registered trademark of Toray's high-performance carbon fiber.

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