

TORAYCA™ Yarn

Toray's Torayca™ yarn is a high-performance carbon fiber made of polyacrylonitrile (PAN). After releasing its Torayca™ T300 in 1971, Toray has been manufacturing high-performance carbon fiber longer than any other company in the world, providing a number of high-quality, stable products.

With its excellent characteristics, Torayca™ composite materials are contribution significantly to wide-ranging fields including aerospace, industrial, sport/leisure, etc.



1. Product Data

TORAYCA™ Carbon Fiber Yarn

	Product No.	Filaments	Tensile Strength* (MPa)	Tensile Strength* (kgf/mm ²)	Modulus of Elongation (GPa)	Modulus of Elongation (kgf/mm ²)	Elongation (%)	Fineness Tex (g/1000m)	Density (g/cm ³)
T300	T300-1000	1000	3530	360	230	23500	1.5	66	1.76
	T300-3000	3000	3530	360	230	23500	1.5	198	1.76
	T300-6000	6000	3530	360	230	23500	1.5	396	1.76
T300B	T300B-1000	1000	3530	360	230	23500	1.5	66	1.76
	T300B-3000	3000	3530	360	230	23500	1.5	198	1.76
	T300B-6000	6000	3530	360	230	23500	1.5	396	1.76
T400HB	T400HB-3000	3000	4610	470	250	25500	1.8	198	1.80
	T400HB-6000	6000	4610	470	250	25500	1.8	396	1.80
T700SC	T700SC-6000	6000	4900	500	230	23500	2.1	400	1.80
	T700SC-12000	12000	4900	500	230	23500	2.1	800	1.80
	T700SC-24000	24000	4900	500	230	23500	2.1	1650	1.80
T700GC	T700GC-12000	12000	4900	500	240	24500	2.0	800	1.79
T720SC ^{*2}	T720SC-36000	36000	5880	600	265	27000	2.2	1650	1.80
T800SC	T800SC-12000	12000	5880	600	294	30000	2.0	515	1.80
	T800SC-24000	24000	5880	600	294	30000	2.0	1030	1.80
T800GC	T800GC-24000	24000	5880	600	294	30000	2.0	1030	1.80
T800HB	T800HB-6000	6000	5490	560	294	30000	1.9	223	1.81
	T800HB-12000	12000	5490	560	294	30000	1.9	445	1.81
T830HB	T830HB-6000	6000	5340	545	294	30000	1.8	223	1.81
T1000GB	T1000GB-12000	12000	6370	650	294	30000	2.2	485	1.80
T1100GC	T1100GC-12000	12000	7000	715	324	33000	2.2	505	1.79
	T1100GC-24000	24000	7000	715	324	33000	2.2	1010	1.79
T1100SC	T1100SC-12000	12000	7000	715	324	33000	2.2	505	1.79
	T1100SC-24000	24000	7000	715	324	33000	2.2	1010	1.79
M35JB	M35JB-6000	6000	4610	470	343	35000	1.3	225	1.75
M40JB	M40JB-6000	6000	4400	450	377	38500	1.2	225	1.77
	M40JB-12000	12000	4400	450	377	38500	1.2	450	1.77
M46JB	M46JB-6000	6000	4200	430	436	44500	1	223	1.84
	M46JB-12000	12000	4020	410	436	44500	0.9	445	1.84
M50JB	M50JB-6000	6000	4120	420	475	48500	0.9	216	1.88
M55JB	M55JB-6000	6000	4020	410	540	55000	0.7	218	1.91
M60JB	M60JB-3000	3000	3820	390	588	60000	0.7	103	1.93
	M60JB-6000	6000	3820	390	588	60000	0.7	206	1.93
M30SC	M30SC-18000	18000	5690	580	294	30000	1.9	760	1.73

*Measured using the impregnated strand method. This information should be used for material selection purposes only.

^{*2} The following patents protect "TORAYCA T720S-36K". EP3467165B1 (Germany: 60 2017 019 957.5, France: 3467165), JP6950526B2, US11313054B2, KR102194940B1, CN109154109B

2. Suitable Applications

TORAYCA™ Carbon Fiber Yarn

	Product No.	Aircraft	Space	UAM	Auto motive	Train	Marine	Pressure Vessel	Pipe	Electric Cable	Medical	Civil Engineering	Sporting Goods
T300	T300-1000 T300-3000 T300-6000	●		●	● ●	● ●	● ●				● ●		● ●
T300B	T300B-1000 T300B-3000 T300B-6000	●		●	● ●	● ●	● ●				● ●		● ●
T400HB	T400HB-3000 T400HB-6000	● ●											
T700SC	T700SC-6000 T700SC-12000 T700SC-24000	●	●	●	● ● ●	● ●	●	● ●	● ●	● ●	● ●	● ●	● ● ●
T700GC	T700GC-12000	●	●	●									
T720SC	T720SC-36000							●		●			●
T800SC	T800SC-12000 T800SC-24000	● ●	● ●	●	●	●	●	●	●			●	●
T800GC	T800GC-24000	●	●										
T800HB	T800HB-6000 T800HB-12000	● ●		●	● ●		● ●						
T830HB	T830HB-6000	●		●									
T1000GB	T1000GB-12000		●		●								
T1100GC	T1100GC-12000 T1100GC-24000	● ●	● ●	● ●	● ●								●
T1100SC	T1100SC-12000 T1100SC-24000	●			●								
M35JB	M35JB-6000												●
M40JB	M40JB-6000 M40JB-12000			●	● ●		● ●						● ●
M46JB	M46JB-6000 M46JB-12000		● ●	●	● ●		● ●				● ●	●	● ●
M50JB	M50JB-6000												●
M55JB	M55JB-6000		●		●						●		●
M60JB	M60JB-3000 M60JB-6000		● ●										●
M30SC	M30SC-18000				●								●

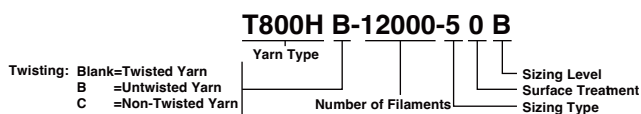
3. Product Specifications of Torayca™ Yarn

TORAYCA™ Carbon Fiber Yarn

Yarn Type			Fiber Weight(kg)	Packaging Type	Packaging Size(mm)					Packing Unit (Net Weight : kg)
					a	b	c	d	e	
T300	1K	A/B	1.0	II	76	82	192	126	156	1.0×12=12
	3K	A/B	2.0	II	76	82	192	157	156	2.0×12=24
	6K	A/B	4.0	II	76	82	192	200	156	4.0× 6=24
T400H	3K	B	2.0	II	76	82	192	157	156	2.0×12=24
	6K	B	4.0	II	76	82	192	200	156	4.0× 6=24
T700S	6K	C	2.0	III	76.5	83.5	280	132	252	2.0×12=24
	12K	C	6.0	III	76.5	83.5	280	200	252	6.0× 4=24
	24K	C	6.0	III	76.5	83.5	280	200	252	6.0× 4=24
T700G	12K	C	4.0	III	76.5	83.5	280	170	252	4.0× 6=24
T720S	36K	C	6.0	III	76.5	83.5	280	200	252	6.0× 4=24
T800S	12K	C	4.0	III	76.5	82.5	280	160	252	4.0× 6=24
	24K	C	7.8	III	76.5	83.5	280	224	252	7.8× 4=31.2
T800G	24K	C	4.0	III	76.5	83.5	280	170	252	4.0× 6=24
T800H	6K	B	2.0	II	76	82	192	157	156	2.0×12=24
	12K	B	4.0	III	76.5	83.5	280	176	252	4.0× 6=24
T830H	6K	B	2.0	II	76	82	192	157	156	2.0×12=24
T1000G	12K	B	4.0	III	76.5	83.5	280	160	252	4.0× 6=24
T1100G	12K	C	2.0	III	76.5	82.5	280	125	252	2.0×12=24
	24K	C	4.0	III	76.5	82.5	280	160	252	4.0× 6=24
T1100S	12K	C	2.0	III	76.5	82.5	280	125	252	2.0×12=24
	24K	C	4.0	III	76.5	82.5	280	160	252	4.0× 6=24
M35J	6K	B	1.0	II	76	82	192	157	156	1.0×12=12
M40J	6K	B	1.0	II	76	82	192	126	156	1.0×12=12
	12K	B	2.0	II	76	82	192	157	156	2.0×12=24
M46J	6K	B	1.0	II	76	82	192	126	156	1.0×12=12
	12K	B	2.0	II	76	82	192	157	156	2.0×12=24
M50J	6K	B	1.0	II	76	82	192	126	156	1.0×12=12
M55J	6K	B	1.0	II	76	82	192	126	156	1.0×12=12
M60J	3K	B	0.25	II	76	82	192	94	156	0.25×20=5
	6K	B	0.4	II	76	82	192	103	156	0.4×20=8
M30SC	18K	C	4.0	III	76.5	83.5	280	170	252	4.0× 6=24

Display Method

The above data is displayed on the Torayca™ label.

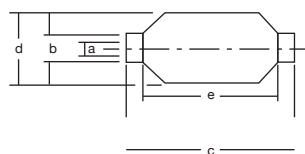


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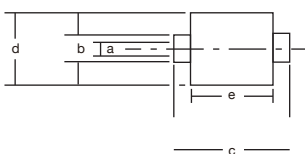
On Toray's products, the number of filaments is sometimes indicated using "K," which is an abbreviated symbol meaning 1000. Also, twisted yarns and untwisted yarns are denoted by the symbols "A" and "B," respectively.
To be specific, Torayca™ 3000 twisted yarn is called "3KA," while Torayca™ 6000 untwisted yarn is called "6K B."

Packaging Standards

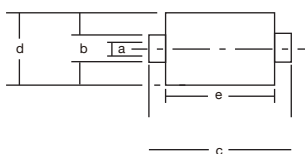
Packaging Type I



Packaging Type II



Packaging Type III



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 waste 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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