



Innovation by Chemistry



Carbon fibre pultruded profiles

A/Description:

Toray carbon fibre profiles are obtained by pultrusion, a low-cost, high volume manufacturing process. Toray profiles are available in rods and plates based on Torayca® carbon fibre.

B/Features and benefits:

Excellent Strength and stiffness/weight ratio
 Excellent fatigue behaviour
 Dimensional stability
 Available in long lengths (coils or rolls).
 Available with different Tg level (between 80°C to 195°).
 Long-term Performance
 Low density

C/Presentation:

The below description is not limited, for any specific request, please contact us.

- Rods:

Diameter from 0.5 mm up to 20 mm

- Plates:

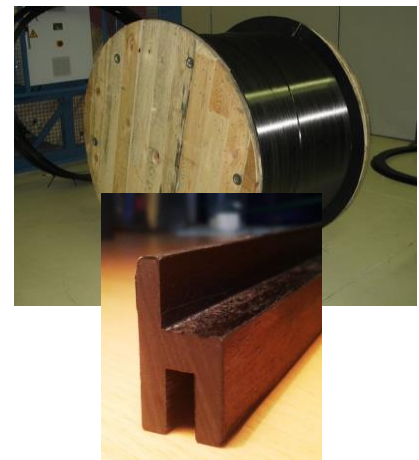
Thickness from 1,2 to 20 mm.
 Width from 10 mm up to 150 mm.

- Fibre:

High strength Torayca ® T 700
 Intermediate modulus Torayca ® T 800
 High modulus Torayca ® HM

- Resin:

Epoxy (Tg up to 195°C), Vinylester.
 FST compliant.





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D/Applications:

Toray carbon profiles are widely used as reinforcement in civil engineering, cable/tethers for deep offshore, train floor, beams and other industry applications. Reinforcement for sandwich structure

E/Packaging:

Toray carbon profiles are delivered in form of coils, reels, bobbins or tuned cuts:

- Rods:

Up to 3,75 mm diameter:
 OD: 800 mm
 ID: 400 mm
 Width: 510 mm

From 3,75 up to 7 mm diameter:
 OD: 1600 mm
 ID: 1100 mm
 Width: 1100 mm

From 7 up to 12 mm diameter:
 OD: 2200 mm
 ID: 1800 mm
 Width: 1300 mm



For larger diameter 12 meters bar.

- Plates:

For thickness up to 2mm, coreless bobbins (internal diameter: 900mm)
 For other thicknesses: 12-meters bar.

- **MARKING:** plates can be customized in line (printing of Logo, Customer Reference, Batch No. etc.).
- **BONDING:** upon request, a surface treatment can be carried out to improve subsequent plate bonding.
- **PROTECTION:** the surface of the plate can also be covered with a peel-ply or a PST type plastic protective film.

F/ Winding and twisting:

Toray carbon profiles can be wound or bent without damage, with no tension, up to the following limit:

Winding/bending diameter = 110 times the diameter for rods and 110 times the thickness for laminates. If during winding or bending some tension /load is applied on the profile, bigger winding/bending diameter should be considered.

Toray carbon profiles can be twisted without damage, with no tension, up to the following limit:

Length of one twist turn = 200 times the diameter for rods.

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E/ Mechanical performance:

All the performance values given in this data sheet are based on experimental results obtained during testing under laboratory conditions. They are typical values; they do not constitute specification minima. For any specific test or information feel free to contact TCFE.

TORAY Carbon fibre UD profile T700S

Mechanical properties normalised for FVC of 70% for Uni-Directional T700S

Tensile Modulus (longitudinal)	160 GPa
Tensile Strength (longitudinal)**	2800 MPa
Tensile Elongation at break(longitudinal)	1,65 θ%
Shear Modulus	3.2 Gpa
Shear Strength	88 Mpa
0° coefficient of Thermal expansion (longitudinal)	1.26 µm/m
90° coefficient of Thermal expansion (Transverse)	52.3 µm/m
0° Thermal conductivity (longitudinal)	4.8 W/m°K
90° Thermal conductivity (Transverse)	1.43 W/m°K

Thermal properties

Tg°C onset Epoxy	100°C
Tg°C onset Heat resistant Epoxy	195°C
Density	1,6

TORAY Carbon fibre UD profile T 800S

Mechanical properties normalised for FVC of 70% for Uni-Directional T800S

Tensile Modulus (longitudinal)	200 GPa
Tensile Strength (longitudinal)**	2900 MPa
Tensile Elongation at break(longitudinal)	1,35 %

Thermal properties

Tg°C onset Epoxy	100°C
Tg°C onset Heat resistant Epoxy	195°C
Density	1,6

** for Standard epoxy only.

Values correspond to average value, not to individual values.

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F/ Storage / Handling precautions:

The usual precautions necessary when handling carbon fibre profile should be observed. A Material Safety Data Sheet is available upon request.

G/ Contacts:

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