



Technical Definition

In Plane Shear
Carbon Fiber Composite

Instructions to participant laboratories

Please read carefully these instructions **BEFORE** starting the tests.

1. Five specimens (230 x 25 x 3 mm) are supplied to each participant – 5 results must be provided. In case of exclusion of a test specimen results by yourself, you shall provide a short root cause analysis.
2. The specimens have to be dried during 48 hours (0/+10) at 70°C (+/- 3) and tested within the next 8 hours after the drying.
3. All tests shall be performed at room temperature in accordance with the requirements of ISO 14129 (1997). AITM 1.0002 issue 3 could be also covered by this kit.

Speed specification: 2 mm per min.

The tests shall be performed respecting the following conditions:

- One operator only
- One testing machine only
- Tests performed in sequence

4. Each participant is required to report the following parameters:

Characteristic	Unit	Significant digits	Mandatory / Not mandatory	Comments
Specimen dimensions both width and thickness measured in at least 3 positions as stated in the reference standard	mm	XX,XX	Mandatory	
Shear Strength at shear strain = 0,05	MPa	XXX,X	Mandatory	Additional calculus for AITM laboratories
Shear Strength at rupture	MPa	XXX,X	Mandatory	Re-test for ISO laboratories
Shear Strength at 0,2 % offset	MPa	XX,XX	Mandatory	
Shear Modulus G calculated between longitudinal strain at 500 and 2500 $\mu\epsilon$	GPa	XX,XX	Mandatory	
Failure Mode	N/A	N/A	Mandatory	

5. Testing shall commence as soon as test specimens are received. All participant laboratories must supply results by April 13th, 2018.

6. Instructions for submission of results are detailed on the website:

<https://ptpscheme.com/>

***Kit In Plane Shear 2017*****Technical Definition**In Plane Shear
Carbon Fiber Composite

7. To ensure confidential treatment of results in the final report, each participant lab will be provided with a unique identity number at the moment of his registration to the program.
8. The sponsors could ask you proofs of your records and analyses, so be sure to conserve data, curves and specimens.
9. The tested specimens do not need to be sent back to PTP.

Annex

Longitudinal Modulus

The longitudinal modulus is the slope of the straight line in a longitudinal stress/strain (σ/ϵ_0) diagram through the points corresponding to two longitudinal strain values. Unless otherwise defined these longitudinal strain shall be $(\epsilon_0)_1 = 500 \times 10^{-6}$ and $(\epsilon_0)_2 = 2500 \times 10^{-6}$ (see figure).

Offset Shear Strength

The offset shear strength value is the shear stress value necessary to obtain a permanent longitudinal deformation (offset). Unless otherwise defined the offset value shall be 0,2% of longitudinal strain [$(\epsilon_0)_1 = 2000 \times 10^{-6}$].

Longitudinal Modulus

$$E_0 = \frac{\Delta P}{wt\Delta\epsilon_0}$$

$$\Delta\epsilon_0 = 2000 \times 10^{-6}$$

$$\Delta P = P_{(\epsilon_0=2500)} - P_{(\epsilon_0=500)}$$

0.2% Offset Shear Strength

