

MATERIAL TEST i121

Static Tensile Strength Test of Fishing Lines

Selection of the best fitted grips Autograph (III)



As Japan is an island nation surrounded by ocean, the Japanese have fished for sustenance since ancient times. The preferred methods of fishing are rod fishing and net fishing.

For rod fishing, there is a variety of nylon fishing line available on the market. Different types of line can be used for small river-game fishing, such as that of AYU (sweet fish); for big target fishing in the ocean, such as that of tuna; or for sporting and leisure purposes.

The following is an example of a test of fishing lines with a pair of grips for tensile test use.

Test piece

Material : Nylon fishing line

Outer diameter : 2mm

Testing conditions

Testing machine : Shimadzu Autograph

Capacity of load cell : 5kN

Loading speed : 300mm/min.

Distance between grips : 300mm

Example of the best fitted grips

Pneumatic capstan type grips for yarn (Fig. 1)

Grip capacity : 5kN

Pneumatic pressure : 400kpa

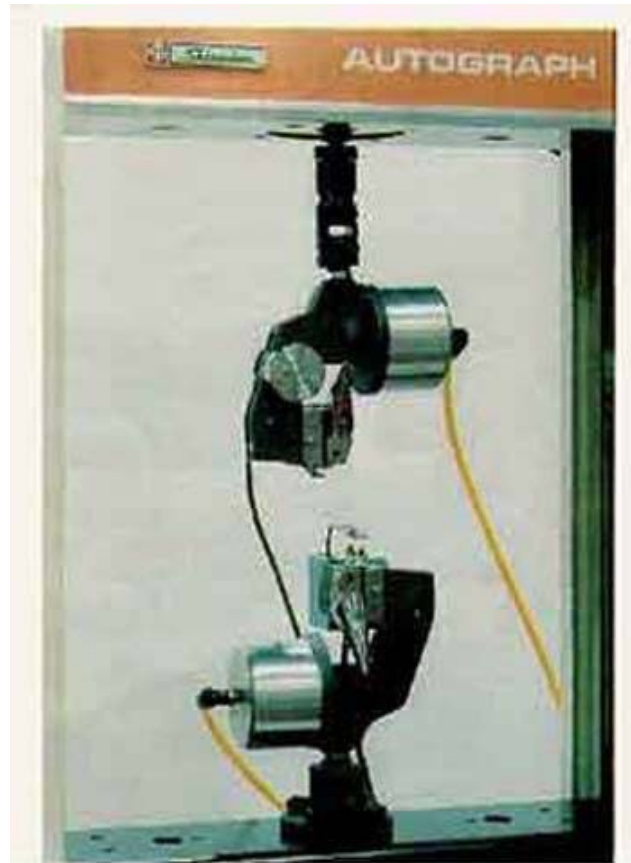


Fig.1 Capstan Type Grips for Yarn

Holding a yarn test piece

Both ends of a test piece (yarn) are placed between the grooves of the upper and lower grips and held firmly with pneumatic pressure. This pressure is controlled by on/off actuation coming from a footvalve, facilitating efficient operation.



Fig.2 Broken test pieces

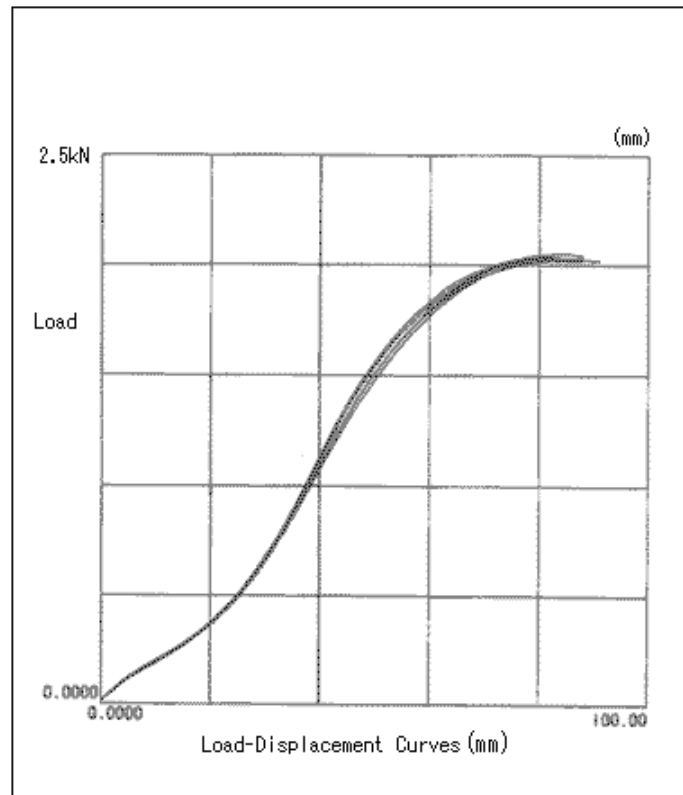


Fig. 3 Load-Displacement Curves

Table 1 Test Results

Specimen No.	Max. load		Elongation at max. load	
	kN	{kgf}	mm	%
1	1.98	202.1	83.3	27.7
2	1.99	203.3	79.0	26.3
3	1.98	202.9	78.8	26.2
4	2.00	204.5	81.7	27.2
5	2.00	204.9	83.3	27.7

Fig.2 shows that all test pieces were broken not where they were gripped, but at the center where the break was expected to occur.

Fig.3 and Table 1 affirm that the tests were conducted correctly without deviation of test data (load versus strain).

It is spring now, high season for racket sports like tennis and badminton. "Guts," the life and soul of a racket, can also be accurately tested for their tensile strength, using these same grips.

* Please be advised that data obtained before the implementation of the current Weights and Measures Law may be presented in terms of gravimetric unit.



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