JSCE-E 708-2010
Test method for the flexural characteristics of plastic sheath for prestressed concrete (draft)

1 Scope

This standard specifies the requirements for carrying out the test to check the flexural characteristics of a plastic sheath used to form a duct to arrange inner cables of prestressed concrete structures. The plastic sheath considered in this standard should use high-density polyethylene or a material with performance not lower than that of high-density polyethylene.

2 References

By being cited herein, the following standards constitute part of the definition of this standard. This standard is based on the latest versions of these cited documents.

JIS G 3109 Steel bars for prestressed concrete

JIS G 3536 Steel wires and strands for prestressed concrete

JIS B 7503 Mechanical dial gauges

3 Definitions

The following terminology is used in this standard:

Sheath specimen: specimen made by cutting the sheath

4 Outline of test

4.1 Purpose of test

Examinations are made for sufficient shape sustainability of a plastic sheath used for PC steel bars specified by JIS G 3109 and PC steel wires and PC steel strands specified by JIS G 3536 with specified accuracy during the construction of PC tendons.

4.2 Conditions of testing room

The standard temperature of the testing room is 23 ± 5 °C unless otherwise specified. The relative humidity is not specified.

4.3 Specimens

The number of sheath specimens is three unless otherwise specified. The length of the sheath specimen is set at the total of the distance between supports, 1.0 m, and the extra length for fixing the specimen at the supports by binding wires.

4.4 Test apparatus

The test apparatus should be as shown in Fig.1. The displacement measuring device should be a dial gage, other type of device specified in JIS B 7503 or a device having higher performance. The tip of the displacement measuring device should touch the wavy bottom surface of the sheath specimen so that it would

not slip, using suitable devices. In the case where the loading test is conducted, both of the supporting points should be fixed by binding with annealed iron wires as shown in Fig.1 so that the rotation of the sheath specimen and the slipping of the supports would not occur. The width of the loading point should be no more than one half of the inner diameter of the sheath. Anti-friction material is inserted between the loading plate and the sheath specimen, if necessary.

5. Test method

a) Place the sheath specimen as shown in Fig.1, and measure the starting position at mid span of the sheath specimen.

b) Apply loads to the sheath specimen up to *F* corresponding to the initial deflection of 20 mm, with the loading rate equal to 100 mm/min or lower.

c) Reduce the load on the specimen to zero quickly. Then, apply loads to the specimen again up to *F* and keep loading for 2 minutes.

d) Then, reduce the load on the specimen to zero quickly.

e) Using the sheath specimen used for the above test, the sheath specimen is placed upside down.

f) The same starting position as described in **a)** for measuring deflection is set as the measuring starting point.

g) In the upside down condition, the test processes from **b)** to **d)** are conducted.

h) After completing **g)**, the load is reduced to zero quickly and the residual deflection which becomes a constant value is measured. The deflection is measured with accuracy with a margin of error of 0.1 mm.

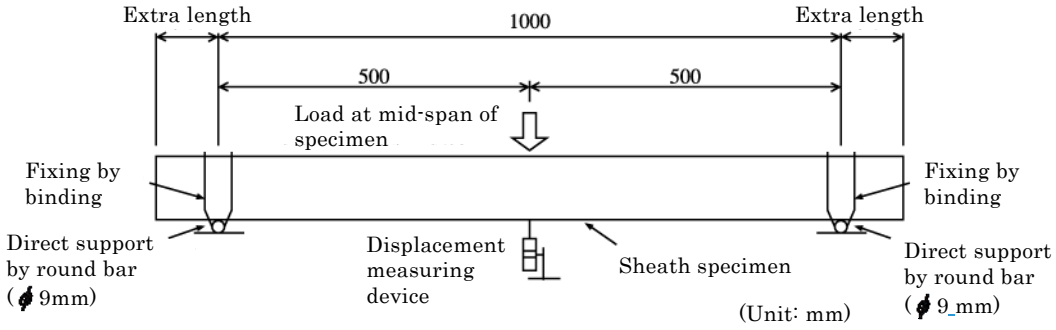

Fig.1 Outline of test

6 Report

6.1 Compulsory reporting

The report must provide the following information:

a) Date of test

b) Name, type and capacity of testing machine

c) Precision of testing apparatus

d) Material, inner diameter, outer diameter, shape and brand of sheath

e) Number of sheath specimens

f) Temperature of testing room

g) Load *F*

h) Residual deflection after test

6.2 As-needed reporting

The report should provide the following information where relevant:

a) Name of testing organization

b) Relative humidity of testing room